

Gallery of USAF Weapons

Note: Inventory numbers are total active inventory figures as of Sept. 30, 2013.

■ 2014 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).

Delivered: June 1985-May 1988.

IOC: Oct. 1, 1986, Dyess AFB, Tex. (B-1B).

Production: 104.

Inventory: 63.

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 accommodate 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; up to 24 AGM-158A JASSMs (AGM-158B JASSM-ER also integrated); GBU-54 Laser JDAM; or a mix, employing a different type of weapon in each bay.

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 radar, and reduction in radar cross section, but max speed cut to Mach 1.2. Total production of 100 B variants, but USAF reduced inventory to 67 aircraft in 2002. First used in combat against Iraq during Desert Fox in December 1998. Equipped over the years with GPS, smart weapons carriage, improved onboard



B-1B Lancer (SSgt. Aaron Allmon)

computers, improved communications. Sniper targeting pod added in mid-2008. Ongoing upgrades include Vertical Situation Display Upgrade, Central Integrated Test System, and Fully Integrated Data Link (FIDL). The FIDL upgrade includes Link 16 and Joint Range Extension data link, enabling permanent LOS and BLOS C2 connectivity. FIDL also adds an Ethernet infrastructure to enable rapid airborne retargeting. The B-1B has an expected service life beyond 2040.

B-2 Spirit

Brief: Stealthy, long-range multirole bomber that can deliver nuclear and conventional munitions anywhere on the globe.



B-2 Spirit (SrA. Kenny Holston)

Function: Long-range heavy bomber.

Operator: AFGSC, AFMC, ANG.

First Flight: July 17, 1989.

Delivered: Dec. 17, 1993.

IOC: April 1997, Whiteman AFB, Mo.

Production: 21.

Inventory: 20.

Aircraft Location: Edwards AFB, Calif., 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.



B-52 Stratofortress (SrA. Carlin Leslie)

Weight: max T-O 336,500 lb.

Ceiling: 50,000 ft.

Performance: speed high subsonic, estimated unrefueled range for a hi-lo-hi mission with 16 B61 nuclear free-fall bombs is 5,000 miles, with one aerial refueling more than 10,000 miles.

Armament: in various combinations, up to nearly 60,000 pounds over two weapons bays. Nuclear weapons on rotary launcher assemblies (RLAs) (one RLA per each bay): up to 16 B61-7, 16 B83, or 8 B61-11 bombs. Conventional weapons on bomb rack assemblies (BRAs) (two BRAs per bay): 80 Mk 62 (500-lb) sea mines, 80 Mk 82 (500-lb) bombs, 80 GBU-38 JDAMs, or 34 CBU-87/89 munitions; on RLAs: 16 GBU-31 JDAMs, 16 Mk 84 (2,000-lb) bombs, 16 AGM-154 JSOWs, 16 AGM-158 JASSMs, or eight GBU-28 LGBs. Future weapons incl JASSM-ER, GBU-53 SDB II, and GBU-57 Massive Ordnance Penetrator.

COMMENTARY

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. Quadruple-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 successive blocks of capability: Blocks 10, 20, and 30. All aircraft have been upgraded to Block 30. Recent application of a specially formulated surface coating has significantly reduced maintenance time and improved operational readiness. Other improvements include integration of a Link 16 LOS tactical communication system and a smart BRA that enables delivery of 80 JDAMs on a single pass. Continuing modernization efforts include a new AESA radar antenna and high-speed computing upgrade that will enable future improvements, such as an EHF satcom system, Defensive Management System-Modernization (DMS-M), and the Flexible Strike capability to enable future use of advanced digital weapons, including the B61-12 bomb and Long-Range Standoff (LRSO) missile.

B-52 Stratofortress

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).

Delivered: 1955-October 1962.

IOC: June 19, 1955.

Production: 744.

Inventory: 76.

Aircraft Location: Barksdale AFB, La.; Edwards AFB, Calif.; Minot AFB, N.D.

Contractor: Boeing.

Power Plant: eight 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 WCMDs, GBU-31/38 JDAMs, AGM-158A JASSMs, and GBU-10/12/28 LGBs. Future weapons incl the GBU-54 Laser JDAM, AGM-158B JASSM-ER, MALD, and MALD-J jammer variant.

COMMENTARY

Many variants; all but one retired. Multimission capability includes long-range precision strike, CAS, offensive counterair, air interdiction, defense suppression, and maritime surveillance. Can carry weapon targeting pods. ECM suite uses a combination of electronic detection, jamming, and IR countermeasures to defeat air defenses.

Extant Variant(s)

■ B-52H. First flown July 1960. Total production was 102, 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. The Internal Weapons Bay Upgrade program will convert 44 nuclear-weapon-capable Common Strategic Rotary Launchers into Conventional Rotary Launchers. Increment 1.1 of this upgrade will enable internal carriage of eight JDAMs and variants and will introduce external carriage of 16 LJDAMs. Increment 1.2 will provide internal carriage of eight JASSMs and eight MALDs or their variants, plus adding external carriage for 12 JASSM-ER missiles. Other ongoing fleet modernization efforts include the Combat Network Communications Technology (CONNECT) program to replace aging cockpit displays and communications, enabling such things as machine-to-machine retasking and retargeting for CALCM and J-series weapons. As of Dec. 31, 2013, USAF estimates an average of 9,391 flight hours remain out of a certified service life of 27,701 hours.

Fighter and Attack Aircraft

A-10 Thunderbolt II

Brief: Twin-engine aircraft specifically designed for CAS of ground forces against a wide range of ground targets, including tanks and other armored vehicles.

Function: Attack aircraft.

Operator: ACC, AFMC, PACAF, USAF-AFAFRICA, ANG, AFRC.

First Flight: Feb. 15, 1975 (preproduction).

Delivered: October 1975-March 1984.

IOC: October 1977.

Production: 713.

Inventory: 334.

Aircraft Location: Barksdale AFB, La.; Boise Air Terminal, Idaho; Davis-Monthan AFB, Ariz.; Egin 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.; Whiteman AFB, Mo.

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-armor tailored HE/armor-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 WCMDs, illumination rockets/flares, AGM-65 Mavericks, 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.

Acronyms

ACTD	Advanced Concept Technology Demonstration
AE	aeromedical evacuation
AEHF	Advanced Extremely High Frequency
AESA	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
AvFID	Aviation Foreign Internal Defense
BLOS	beyond line of sight
BLU	bomb live unit
BM	battle management
C2	command and control
C3	command, control, & communications
CALCM	Conventional ALCM
CAS	close air support
CBU	cluster bomb unit
CEM	combined effects munition
CEP	circle error probable
CFTs	conformal fuel tanks
COTS	commercial off the shelf
CSAR	combat search and rescue
CSO	combat systems officer
DARPA	Defense Advanced Research Projects Agency
EA	electronic attack
ECM	electronic countermeasures
EHF	extremely high frequency
EIint	electronic intelligence
EO	electro-optical
ER	extended range
EW	electronic warfare
EWO	electronic warfare officer
FLIR	forward-looking infrared
FMV	full-motion video
FYDP	Future Years Defense Program
GATM	Global Air Traffic Management
GBU	glide bomb unit
GCS	ground control station
GPS	Global Positioning System
HARM	High-speed Anti-Radiation Missile
HE	high-explosive
HUD	head-up display
IFF	identification, friend or foe
IIR	imaging IR
Imint	imagery intelligence
INS	inertial navigation system
IOC	initial operational capability
IR	infrared
ISR	intelligence, surveillance, & reconnaissance
JASSM	Joint Air-to-Surface Standoff Missile
JDAM	Joint Direct Attack Munition
JSOW	Joint Standoff Weapon

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A-10C Thunderbolt II (Jim Haseltine)

COMMENTARY

Deadly combination of large and diverse weapons payload, long loiter times, austere airfield capability, maneuverability, and wide combat radius. Can operate under 1,000 ft ceilings, above 25,000 ft with ATPs 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/WCMB integration, Litening and Sniper ATP capability, Situational Awareness Data Link (SADL), and integration of sensors with aircraft systems. IOC in August 2007. First combat deployment September 2007. Although fleetwide wing replacements were ongoing, USAF announced in its FY15 budget plans to retire the entire fleet by FY19, beginning with 89 aircraft in FY15.

F-15 Eagle

Brief: A supersonic, all-weather, highly maneuverable tactical fighter designed to swiftly gain and maintain air superiority in aerial combat.

Function: Air superiority fighter.

Operator: ACC, AFMC, PACAF, USAF-AFAFRICA, ANG.

First Flight: July 27, 1972.

Delivered: November 1974-85.

IOC: September 1975.

Production: 874.

Inventory: 214 (F-15C); 35 (F-15D).

Aircraft Location: Barnes Arpt., Mass.; Eglin AFB, Fla.; Great Falls Arpt., Mont.; Jacksonville Arpt., Fla.; Kadena AB, Japan; Kingsley Field (Klamath Falls), Ore.; NAS JRB New Orleans, La.; Nellis AFB, Nev.; Portland Arpt., Ore.; RAF Lakenheath, UK.

Contractor: McDonnell Douglas (now Boeing), Raytheon.

Power Plant: Two Pratt & Whitney F100-PW-220 turbofan engines, each 23,450 lb thrust; or two P&W F100-PW-229 turbofan engines with afterburners, each 29,000 lb thrust.

Accommodation: pilot (C); two pilots (D).

Dimensions: span 42.8 ft, length 63.8 ft, height 18.7 ft.

Weight: max T-O 68,000 lb.

Ceiling: 60,000 ft.

Performance: F-15C: speed Mach 2.5, ferry range

3,450 miles with CFTs and three external tanks.

Armament: one internally mounted M61A1 20 mm six-barrel cannon (940 rd); four AIM-9 Sidewinders and four AIM-120 AMRAAMs or eight AIM-120s, carried externally.

COMMENTARY

World's dominant air superiority fighter for more than 30 years. Became USAF's front-line fighter upon introduction in the mid-1970s. Combines superior maneuverability and acceleration, range, weapons, and avionics. First saw combat for USAF in 1991 Gulf War, accounting for 34 of the 37 USAF air-to-air victories. Before that, flown in combat by Israeli Air Force in the 1982 Bekaa Valley War.

Extant Variant(s)

■ F-15C/D. Introduced in June 1979, with an internal EW countermeasures suite, additional 2,000 lb of internal fuel, and provision for CFTs. Tactical capabilities were enhanced with the initiation of the Multistage Improvement Program. The final 43 production aircraft received the F-15E-designed APG-70 radar. The FY15 budget supports ongoing upgrades, including the AESA radar, a more capable mission computer, and a new EW self-protection system. USAF has delayed by one year development of the Eagle Passive/Active Warning Survivability System (EPAWSS) but considers it crucial to future operations in highly contested environments. USAF has announced plans to retire 51 aircraft over the FYDP, sustaining the remaining aircraft through at least 2035. It expects to complete full-scale fatigue testing in 2014 to determine possible life-extension measures.

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, AFMC, USAF-AFAFRICA.

First Flight: Dec. 11, 1986.

Delivered: April 1988-2004.

IOC: September 1989.

Production: 236.

Inventory: 218.

Aircraft Location: Eglin AFB, Fla.; Mountain Home AFB, Idaho; Nellis AFB, Nev.; RAF Lakenheath, UK; Seymour Johnson AFB, N.C.

Contractor: McDonnell Douglas (now Boeing), Raytheon.

Power Plant: two Pratt & Whitney F100-PW-220, each 23,450 lb thrust; or two F100-PW-229 turbofans with afterburners, each 29,000 lb thrust.

Accommodation: pilot and WSO.

Dimensions: span 42.8 ft, length 63.8 ft, height 18.5 ft.

Weight: max T-O 81,000 lb.

Ceiling: 50,000 ft.

Performance: speed Mach 2.5, ferry range 2,400 miles with CFTs and three external tanks.

Armament: one internally mounted M61A1 20 mm six-barrel cannon (500 rd); four AIM-9 Sidewinders and four AIM-120 AMRAAMs or eight AIM-120s; most air-to-surface weapons in USAF inventory (nuclear and conventional).

COMMENTARY

Basic F-15 airframe strengthened and upgraded for heavyweight multirole capability. Saw first combat in Desert Storm in 1991. Can maneuver at nine Gs throughout flight envelope.

Extant Variant(s)

■ F-15E. Has advanced cockpit controls, displays, and a wide-field-of-view HUD. Array of integrated avionics and electronics to permit fight at low, medium, or high altitude, day or night, and in all weather conditions. Carries LANTIRN targeting pods and Sniper and Litening ATPs on dedicated sensor stations. SAR pod provides surveillance and reconnaissance support to ground operations. Potent ground attack capability supplied by GPS-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 upgrades include an AESA radar, more capable mission computer, and helmet mounted cueing system for the front cockpit. EPAWSS mods are delayed one year. USAF expects to complete full-scale fatigue testing in 2015 to determine whether the aircraft will need a SLEP to continue in service until at least 2035.

F-16 Fighting Falcon

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

Function: Multirole fighter.

Operator: ACC, AETC, AFMC, PACAF, USAF-AFAFRICA, ANG, AFRC.

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

Delivered: January 1979-2005.

IOC: October 1980, Hill AFB, Utah.

Production: 2,206.

Inventory: 846 (F-16C); 161 (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 Alabama, Arizona, California, Colorado, District of Columbia (flying out of Maryland), 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



F-15E Strike Eagles (SSgt. Michael B. Keller)

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; new engines; and additional weapons, including the AGM-88 HARM. Block 40/42 and Block 50/52 aircraft are the newest variants, but the majority are showing bulkhead cracks. Sustainment efforts to extend the F-16 as a bridge to the F-35A have included a legacy SLEP, integration of new weapons and targeting pods, and the Combat Avionics Programmed Extension Suite (CAPES). The SLEP includes structural mods to add six to eight years of service life for 300 aircraft. USAF had to drop CAPES from its FY 15 budget, but it considers upgrades with an AESA radar, new cockpit display, data link enhancements, and improved defensive suite necessary to ensure effectiveness against emerging threats.

■ **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 diffracted optics HUD.

■ **F-16CJ 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 technology with avionics growth capability, ring laser gyro INS, GPS, ALR-56M RWR, ALE-47 threat adaptive countermeasures system, and advanced IFF system. 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, multirole fighter designed to penetrate advanced anti-air threats and achieve air dominance.

Function: Air dominance multirole fighter.

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

First Flight: Sept. 7, 1997.

Delivered: 2002 (first production representative aircraft).

IOC: Dec. 15, 2005.

Production: 187.

Inventory: 182.

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



F-16C Fighting Falcon (Aaron M. U. Church)

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: speed 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 intraflight data link permits 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 shoot cues. Other equipment includes APG-77 radar, an EW system with RWR and missile launch detector, JTIDS, IFF system, laser gyroscope inertial reference, and GPS. The FY 15 funding request would continue the Reliability, Availability, and Maintainability Maturation Program (RAMMP) to develop and integrate upgrades and retrofit of combat-coded F-22s with Increment 3.1 mods, upgrading SAR ground mapping, threat geolocation, EA capability, and integration of SDB 1. It also continues development of Increment 3.2, including integration of AIM-120D AMRAAM and AIM-9X.

F-35 Lightning II

Brief: Next generation strike aircraft.

Function: Multirole fighter.

Operator: AETC, AFMC. Planned: ACC, PACAF, USAF-AFAFRICA, ANG.

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 seven other partner countries.

Inventory: 22 (USAF).

Aircraft Location: Edwards AFB, Calif.; Eglin AFB, Fla.; Luke AFB, Ariz.; 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.

Ceiling: 50,000 ft.

Acronyms, Continued

JSUPT	Joint Specialized Undergraduate Training
JTIDS	Joint Tactical Information Distribution System
LANTIRN	Low-Altitude Navigation & Targeting Infrared for Night
LCD	liquid crystal display
LGB	laser guided bomb
LJDAM	Laser JDAM
LO	low observable
LOS	line of sight
LRIP	low-rate initial production
MALD	Miniature Air Launched Decoy
Masint	measurement & signature intelligence
MFD	multifunction display
MTI	military training instructor
n/a	not available
NSAv	non-standard aviation
NVG	night vision goggles
PGM	precision guided munition
PSP	precision strike package
ROVER	Remotely Operated Video Enhanced Receiver
RPA	remotely piloted aircraft
RWR	radar warning receiver
SAR	synthetic aperture radar
satcom	satellite communications
SDB	Small Diameter Bomb
SEAD	suppression of enemy air defenses
SHF	super high frequency
shp	shaft horsepower
Sigint	signals intelligence
S-L	sea level
SLEP	service life extension program
SOF	special operations forces
STOL	short takeoff and landing
TACAN	tactical air navigation
TBD	to be determined
TF/TA	terrain-following/terrain-avoidance
T-O	takeoff
WCMD	Wind-Corrected Munitions Dispenser
WSO	weapon systems officer



F-22A Raptor (SSgt. Jacob N. Bailey)

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

Armament: F-35A: one 25 mm GAU-22/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, the program provides: F-35A conventional takeoff and landing (CTOL) variant for the Air Force; F-35B short takeoff and vertical landing (STOVL) variant for USMC; and F-35C carrier variant (CV) variant for USN. USAF's F-35A will replace F-16 and A-10 fleets with a stealthy multirole fighter. Designed to be able to enter heavily defended enemy airspace and engage all enemy targets in any conflict. Features advanced stealth design, high maneuverability, long range, and advanced avionics.

Extant Variant(s)

■ F-35A. First flight by a USAF test pilot on Jan. 30, 2008. On May 5, 2011, USAF received its first production aircraft—dubbed AF-7—built as part of Lot 1 LRIP. F-35 joint schoolhouse at Eglin received its first F-35, a production model F-35A CTOL variant, on July 14, 2011. On Feb. 28, 2012, USAF cleared the F-35s at Eglin schoolhouse for initial flight operations. All variants are still in development and test. Program officials expect the development program, which is about 90 percent complete, to end in 2017. Nellis flew its first operational test mission on April 4, 2013. The first of 144 F-35As to be based at Luke, selected to train both USAF and international pilots, arrived March 11, 2014. The FY15 budget would procure another 26 F-35As.

Special Operations Forces Aircraft

AC-130H/U 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, for CAS, air interdiction, and armed reconnaissance.

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. (U model).



F-35A Lightning II (MSgt. Jeremy T. Lock)

Contractor: Lockheed Martin (airframe); Boeing (AC-130H); Rockwell, now Boeing (AC-130U).

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

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

Dimensions: span 132.6 ft, length 97.8 ft, height 38.5 ft.

Weight: gross 155,000 lb.

Ceiling: 25,000 ft.

Performance: speed 300 mph, range 1,300 miles.

Armament: AC-130H: one 40 mm Bofors cannon (256 rd) and one 105 mm Howitzer (100 rd). AC-130U: one 25 mm Gatling gun, plus one 40 mm and one 105 mm cannon.

COMMENTARY

Gunship modified with gun systems, electronic and EO sensors, fire-control systems, enhanced navigation systems, sophisticated communications, defensive systems, in-flight refueling capability. Plans call for phased replacement with procurement of AC-130J models beginning in 2014.

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 (LLLTV), and capable of in-flight refueling. Advanced fire-control computers, navigation, communications, and sensor suites. Originally AC-130E, converted to H standard after Vietnam War.

■ AC-130U Spooky. Serves with 1st SOW, Hurlburt Field. Conversions of earlier gunships. Thirteen conversions by Rockwell delivered to 4th SOS in 1994-95. Four remaining conversions done by Boeing in recent years. All weapons can be subordinated to the APQ-180 digital fire-control

radar, FLIR, or all-light-level television (ALLTV) for adverse weather attack operations.

AC-130J Ghost rider

Brief: Fourth generation gunship upgraded with digital avionics, trainable 30 mm and 105 mm cannons, and low-yield PGMs, primarily to conduct CAS and air interdiction missions and is suited particularly for urban operations.

Function: Attack aircraft.

Operator: AFSOC.

First Flight: April 5, 1996 (basic C-130J).

Delivered: from 2014.

IOC: 2017 (planned).

Production: 32 (to be converted from new-build MC-130Js).

Inventory: 0.

Aircraft Location: Cannon AFB, N.M. (initial).

Contractor: Lockheed Martin.

Power Plant: four Rolls-Royce AE 2100D3 turboprops, each 4,591 shp.

Accommodation: two pilots, two CSOs, three enlisted gunners.

Dimensions: span 132.6 ft, length 97.7 ft, height 38.8 ft.

Weight: max T-O 164,000 lb.

Ceiling: 28,000 ft., 42,000 lb payload.

Performance: speed 416 mph, range 3,000 miles.

Armament: 30 mm GAU-23/A cannon; 105 mm cannon; PGMs.

COMMENTARY

A C-130J significantly modified to include fully integrated digital avionics cockpit, GPS/INS, integrated defensive systems and color weather radar, and PSP. Designed to provide ground forces with a direct-fire platform that is persistent, suited for urban operations, and delivers precision low-yield munitions against ground targets. Air interdiction missions may cover preplanned targets or targets of opportunity and include strike coordination and reconnaissance.

Extant Variant

■ AC-130J Ghost rider. PSP includes a mission management console, robust communications suite, two EO/IR sensors, advanced fire control equipment, PGM delivery capability, and trainable cannons. First delivery expected in 2014, running through FY21. IOC slated for FY17 at Cannon.

AC-130W Stinger II

Brief: Highly modified C-130H aircraft that primarily provides armed overwatch, performing reconnaissance and direct ordnance delivery to support ground troops.

Function: Armed overwatch for special operations activities.

Operator: AFSOC.

First Flight: circa 2006 (Combat Spear).

Delivered: November 2010 (Dragon Spear).

IOC: 2010 (Dragon Spear).

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: two pilots, two CSOs, flight



AC-130U Spooky (A1C Emily Moore)

engineer, and two special mission aviators.
Dimensions: span 132.6 ft, length 98.8 ft, height 38.5 ft.

Weight: max T-O 155,000 lb.

Ceiling: 28,000 ft.

Performance: speed 300 mph, range 2,875 miles.

Armament: 30 mm GAU-23/A Bushmaster II chain gun; PGMs, incl GBU-39 SDB and AGM-176 Griffin.

COMMENTARY

A C-130H significantly modified to include improved navigation, threat detection, countermeasures, communications suites, and a standoff PSP. Originally modified to MC-130W Combat Spear variant, primarily for infiltration/exfiltration and in-flight refueling of SOF helicopters. In November 2010 USAF introduced a roll on/roll off PSP, changing the name to Dragon Spear, to meet a new USSOCOM requirement for additional gunships. In May 2012 USAF changed the designation to AC-130W Stinger II, after adding further enhancements, including an improved PSP. Plans call for the new-build C-130J gunships to replace AC-130Ws, which on average are more than 24 years old.

Extant Variant(s)

■ AC-130W Stinger II. Performs 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 a mission management console, communications suite, and flight deck hardware. SDB capability deployed in July 2012.

C-145 Skytruck

Brief: STOL, multipurpose utility aircraft used for the AvFID mission and light mobility operations.

Function: Foreign aviation forces trainer and light mobility.

Operator: AFSOC, AFRC (classic associate).

First Flight: July 1993 (PZL M-28).

Delivered: from 2009.

IOC: n/a.

Production: 16 (planned).

Inventory: USSOCOM-owned.

Aircraft Location: Duke Field, Fla.

Contractor: PZL Mielec (Sikorsky subsidiary)

Power Plant: two Pratt & Whitney PT6A-65B turboprops, 1,100 shp.

Accommodation: crew: two pilots, one loadmaster. Load: 16 passengers or 10 paratroopers; up to four litters; max cargo 5,000 lb.

Dimensions: span 72.3 ft, length 43 ft, height 16.1 ft.

Weight: max T-O 16,534 lb.

Ceiling: 25,000 ft.

Performance: speed 256.5 mph, range 1,161.5 miles.

COMMENTARY

Originally purchased by USSOCOM and operated by AFSOC for the NSAv mission, providing dedicated air support for small, detached combat teams, the C-145A flew out of Cannon AFB, N.M., making its first deployment in March 2011 to support operations in Afghanistan. In 2012 USSOCOM began several asset realignments, including shifting the C-145As to support the AvFID mission as part of increased emphasis on the Combat Aviation Advisors role in building partner-nation capabilities. The last two of 10 aircraft departed Cannon for Duke Field in March 2013. Duke is slated to receive its six final C-145As in FY15.

Extant Variant(s)

■ C-145A. Built by Polish manufacturer PZL Mielec as the M-28 Skytruck, the C-145A is a high-wing aircraft with twin vertical fins and a nonretractable tricycle landing gear capable of STOL to unprepared runways. It is reconfigurable to support both airlift and airdrop (max 2,400 lb) of cargo, casualty evacuation, CSAR, humanitarian assistance, and disaster relief. Operated by AFSOC's 6th SOS Combat Aviation Advisors and AFRC's 711th SOS (classic associate) out of Duke Field, where AFSOC and AFRC units also provide AvFID aircraft training.

C-146 Wolfhound

Brief: A militarized German-built Dornier 328 commuter airliner that provides flexible and responsive mobility support to SOF operations worldwide.

Function: Multimission mobility.



C-145A Skytruck (TSgt. Jasmin Taylor)

Operator: AFSOC.

First Flight: December 1991 (Do 328).

Delivered: from 2011.

IOC: n/a.

Production: 17 (converted).

Inventory: USSOCOM-owned.

Aircraft Location: Cannon AFB, N.M.

Contractor: Fairchild-Dornier; Sierra Nevada Corp.

Power Plant: two Pratt & Whitney 119C turbo-props, 2,150 shp.

Accommodation: crew: two pilots, one loadmaster. Load: 27 passengers; up to four litters; max cargo 6,000 lb.

Dimensions: span 69.6 ft, length 68.8 ft, height 23.8 ft.

Weight: max T-O 30,843 lb.

Ceiling: 31,000 ft.

Performance: speed 335 mph, range 2,070 miles (2,000 lb cargo).

COMMENTARY

Purchased by USSOCOM and operated by AFSOC for the NSAv mission, the C-146A provides direct support to SOF teams worldwide, utilizing prepared and semiprepared airfields. Sierra Nevada Corp. has overseen modifications and took delivery of the 17th aircraft from Fairchild-Dornier in summer 2013.

Extant Variant(s)

■ C-146A. Preowned aircraft built by German manufacturer Dornier as the Do-328, the C-146A has received NSAv-specific modifications, including communications suite (ARC-231, PRC-117, and Iridium package), troop/cargo-capable cabin, casualty evacuation capability, NVG compatibility, and STOL and austere landing zone enhancements. First deployed in October 2011 to support USAFRICOM operations.

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.



CV-22 Osprey (TSgt. DeNoris Mickle)

Function: Multimission airlift.

Operator: AETC, AFSOC.

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

Delivered: 2006.

IOC: 2009.

Production: 52 (CV-22; incl two replacements).

Inventory: 32.

Aircraft Location: Hurlburt Field, Fla.; Kirtland AFB, N.M.; RAF Mildenhall, UK.

Contractor: Boeing, Bell Helicopter Textron.

Power Plant: two Rolls Royce-Allison AE1107C turboshafts, each 6,200 shp.

Accommodation: crew: officer: 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

Multiengine, 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. RAF Mildenhall received the first of 10 CV-22s in June 2013. Final delivery expected in 2014. FY15 budget would fund CV-22 production line shut down and Pacific region squadron standup.

Extant Variant(s)

■ CV-22B. Air Force's variant of the V-22 Osprey. Operates with forces of USSOCOM. 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.

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: 22 new-build MC-130Hs.

Inventory: 5 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-130E load: 53 troops or 26 paratroopers. MC-130H crew: officer: two pilots, navigator, EWO; enlisted: flight engineer, two loadmasters. MC-130H load: 77 troops, 52 paratroops, or 57 litters.

Dimensions: span 132.6 ft, height 38.5 ft, length 100.8 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 airdrop 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 I. 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-130J Commando II

Brief: Aircraft that flies clandestine or low-visibility, low-level missions into denied areas to provide air refueling for SOF helicopters and tilt-rotor aircraft or to air-drop/resupply special operations forces.



MC-130J Commando II (SSgt. Matthew Plew)



MC-130H Combat Talon II (SSgt. Samuel Morse)

Function: Air refueling for SOF helicopters and tilt-rotor aircraft and airdrop.

Operator: AETC, AFSOC.

First Flight: April 20, 2011.

Delivered: September 2011.

IOC: 2011.

Production: 37 (planned).

Inventory: 13.

Aircraft Location: Cannon AFB, N.M.; Kirtland AFB, N.M.; RAF Mildenhall, UK.

Contractor: Lockheed Martin (airframe), Boeing.

Power Plant: four Rolls Royce AE2100D3 turboprops, each 4,591 shp.

Accommodation: crew: officer: two pilots, CSO; enlisted: two loadmasters. Load: n/a.

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 single-ship intrusion of hostile territory missions to provide air refueling of special operations forces vertical-lift and tilt-rotor assets and the infiltration, exfiltration, and resupply of SOF by airdrop or air-land operations. Has secondary mission of leaflets airdrop. Replacing MC-130E and MC-130P tankers. USAF officially changed name 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 reduce 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.

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.

Operator: AETC, AFSOC, ANG.

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

Delivered: from 1965.

IOC: 1986.

Production: (converted).

Inventory: 23.

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

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-130P. 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.

U-28A

Brief: A militarized version of the Pilatus PC-12 that provides tactical airborne ISR support for special operations teams.

Function: Tactical ISR.

Operator: AFSOC, AFRC.

First Flight: circa 1994 (PC-12).

Delivered: 2006.

IOC: n/a.

Production: (converted).

Inventory: USSOCOM-owned.

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

Contractor: Pilatus Aircraft Ltd.

Power Plant: single Pratt & Whitney PT6A-67B, 1,200 shp.

Accommodation: officer: two pilots, one CSO, one tactical systems officer.

Dimensions: span 53.3 ft, length 47.3 ft, height 14 ft.

Weight: max T-O 10,935 lb.

Ceiling: 30,000 ft.

Performance: speed 253 mph, range 1,725 miles.

COMMENTARY

Modified Pilatus PC-12 aircraft flies worldwide special operations missions. USSOCOM owned and AFSOC operated for the NSAv role. AFRC provides associate instructors for flying training.

Extant Variant(s)

■ U-28A. Mods include advanced radio-commu-

nications suite, aircraft survivability equipment, EO sensors, and advanced navigation systems. First employed by AFSOC for Enduring Freedom and Iraqi Freedom.

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.

First Flight: Oct. 31, 1975 (full avionics).

Delivered: March 1977-84.

IOC: 1977.

Production: 33.

Inventory: 22 E-3B; six E-3C; three E-3G.

Aircraft Location: 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 radio communications, and five additional mission consoles. Completed in 1994. Received Block 30/35 mods, integrating and enhancing four major subsystems; 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. Designation applied to Block 40/45 upgraded aircraft. 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 a 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.

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 E-4A; January 1980 E-4B.

Production: four.

Inventory: four.

Aircraft Location: Offutt AFB, Neb.



E-3 Sentry (SrA. Brett Clashman)

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 the National Airborne Operations Center (NAOC) mission. Provides 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 Milstar satellite terminals and six-channel International Maritime Satellite. A tri-band radome houses SHF communications antenna. The last aircraft has received the Modernization Block 1 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 (active associate) and ANG.

First Flight: December 1988.

Delivered: May 1996-2005.

IOC: Dec. 18, 1997.

Production: 18.

Inventory: 17.

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 (can be augmented according to mission).

Dimensions: span 145.8 ft, length 152.9 ft, height 42.5 ft.

Weight: max T-O 336,000 lb.

Ceiling: 42,000 ft.

Performance: speed 584 mph (optimal orbit), range 9 hr normal endurance, longer with air refueling.

COMMENTARY

Aircraft equipped with canoe-shaped radome under the forward fuselage housing a 24-ft-long side-looking phased array antenna capable of locating, classifying, and tracking vehicles on the ground. Data is transmitted via data link to ground stations or other aircraft. 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 at ranges beyond the forward area of troops. The first two developmental aircraft deployed in 1991 to Desert Storm.

Extant Variant(s)

■ E-8C. 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. USAF retired one aircraft damaged beyond economical repair. Development testing of the first new production-configured Pratt & Whitney JT8D-219 engine on the JSTARS test aircraft completed in 2011. However, in May 2012, USAF said it would not proceed with the re-engining



E-8 JSTARS (SrA. Andrew Lee)

program. With some COTS mission equipment now 20 years old, USAF is continuing some upgrades through FY15 but expects to begin an aircraft recapitalization program in FY18.

EC-130H Compass Call

Brief: A heavily modified C-130 for electronic combat.
Function: Electronic warfare.

Operator: ACC.
First Flight: 1981.
Delivered: 1982.

IOC: 1983; Block 30 from February 1999.

Production: (converted).
Inventory: 14.

Aircraft Location: Davis-Monthan AFB, Ariz.

Contractor: Lockheed Martin.

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

Accommodation: officer: two pilots, navigator, two EWOs; enlisted: flight engineer, mission crew supervisor (cryptologic experienced), four cryptologic linguists, acquisition operator, and airborne maintenance technician.

Dimensions: span 132.6 ft, length 99 ft, height 38 ft.

Weight: max T-O 155,000 lb.

Ceiling: 25,000 ft.

Performance: speed 300 mph at 20,000 ft.

COMMENTARY

Aircraft designed to disrupt enemy C2 communications and limit adversary coordination essential for enemy force management.

Extant Variant(s)

■ EC-130H. Mods include EA system and air refueling capability. All aircraft retrofitted to Block 35. Mission equipment baseline upgrades occur about every three years to ensure continued protection against evolving threats. Also replacing center wing box to meet wing service life expiration.

EC-130J Commando Solo (CS)/Super J (SJ)

Brief: A C-130J modified for psychological warfare broadcast and information operations (CS) and special operations mobility missions (SJ).

Function: Psychological and SOF mobility operations.

Operator: ANG.

First Flight: April 5, 1996 (C-130J).

Delivered: March 1980 (J model from 2003).

IOC: December 1980 (EC-130E).

Production: seven.

Inventory: seven (three CS, four SJ).

Aircraft Location: Harrisburg Arpt., Pa.

Contractor: Lockheed Martin, Raytheon.

Power Plant: four Rolls Royce-Allison AE2100D3 turboprops, each 4,637 shp.

Accommodation: officer: two pilots, flight systems officer, mission systems officer; enlisted: two loadmasters, five electronic communications systems operators (CS).

Dimensions: span 132.6 ft, length 97.8 ft, height 38.8 ft.

Weight: max T-O 164,000 lb.

Ceiling: 28,000 ft.

Performance: speed 335 mph cruise, range 2,645 miles.

COMMENTARY

Commando Solo aircraft have been employed for psychological operations in every US war and most other contingency operations since 1980, providing Military Information Support Operation (MISO) and civil affairs broadcasts. Recapitalization to the J model coincided with introduction of a secondary mission—special operations mobility, known as SOFFLEX—and planned introduction of a roll on/roll off (RORO) broadcast package to enable the Super J aircraft to perform the primary mission as lower cost modular Commando Solo aircraft.

Extant Variant(s)

■ EC-130J Commando Solo. Three heavily modified C-130J aircraft used by ANG's 193rd 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, with deployments to contingency operations beginning in 2005.

■ EC-130J Super J. Four modified C-130J aircraft used by ANG's 193rd SOW for SOFFLEX missions, including personnel and cargo airdrop,



MC-12 Liberty (SrA. Tiffany Trojca)

combat offload, and infiltration/exfiltration. Plans call for incorporation of a RORO psychological broadcast package (potentially the Army's Fly-Away Broadcast System).

MC-12W Liberty

Brief: A medium- to low-altitude, twin-engine turboprop ISR version of the militarized C-12, based on the Beechcraft Super King Air 350/350ER.

Function: Manned tactical ISR.

Operator: ACC, ANG.

First Flight: April 2009.

Delivered: from April 2009.

IOC: June 2009.

Production: 42 (planned).

Inventory: 41.

Aircraft Location: Beale AFB, Calif.; Key Field, Miss. (initial weapon system training). Other TBD.

Contractor: Hawker Beechcraft, L3 Communications.

Power Plant: two Pratt & Whitney Canada PT6A-60A turboprops, each 1,050 shp.

Accommodation: two pilots and two sensor operators.

Dimensions: span 57.9 ft, length 46.7 ft, height 14.3 ft.

Weight: max T-O 15,000 lb (350) and 16,500 lb (350ER).

Ceiling: 35,000 ft.

Performance: speed 359 mph; range 1,725 miles (350) and 2,760 miles (350ER).

COMMENTARY

Acquired to augment RPA systems operating in Southwest Asia, this sensor-equipped C-12 is a complete collection, processing, analysis, and dissemination system. It provides ground forces with targeting data and other tactical intelligence. The MC-12W began operations in Iraq in June 2009 and in Afghanistan in December 2009.

Extant Variant(s)

■ MC-12W. Initial mod to first seven aircraft—used King Air 350s—included FMV, LOS satcom data link to ROVER system, limited Sigint, and basic BLOS connectivity. Subsequent mod to remaining 30 aircraft—based on King Air 350ER—includes enhanced FMV with laser designator, more robust Sigint, and increased bandwidth for BLOS connectivity. Before joining the fleet, an additional five aircraft are completing mod to Phase 3 configuration, including a high-definition EO/IR sensor with Hi-beam capability, enhanced communications equipment, digital intercom control system, and TACAN system. USAF plans to transfer the MC-12W to USSOCOM and the Army at end of FY14.

MQ-1 Predator

Brief: 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 surveillance, target acquisition.

Operator: ACC, AFSOC, ANG, AFRC.

First Flight: July 1994.

Delivered: July 1994 (USAF from 1996)-2011.

IOC: 2005.

Production: 268 air vehicles.

Inventory: 156.

GCS Location: Cannon AFB, N.M.; Creech AFB, Nev.; Davis-Monthan AFB, Ariz.; Ellington Field, Tex.; Hector Arpt., N.D.; Holloman AFB, N.M.; March ARB, Calif.; Nellis AFB, Nev.; Springfield-Beckley Arpt., Ohio.; Whiteman AFB, Mo.

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 RQ-1 to MQ-1 to denote multimission capability. USAF forward deploys launch and recovery element (LRE) systems and support personnel for takeoff and landing operations, while the CONUS-based GCS conducts the mission via extended communication links.

Extant Variant(s)

■ MQ-1B. Multimission weaponized RPA. Employs near real-time FMV and MTS-A multispectral targeting system, which provides a laser designator and laser illuminator with EO/IR sensors in a single package. GCS controls the RPA via LOS data link or BLOS satcom data link. USAF received its last MQ-1B in March 2011, but continues to fund GCS and airframe mods.

MQ-9 Reaper

Brief: A medium-to-high altitude, long-endurance RPA. Operates as a persistent hunter-killer.

Operator: ACC, AFSOC, ANG.

First Flight: February 2001.

Delivered: November 2003.

IOC: October 2007.

Production: 319 (planned).

Inventory: 104.

GCS Location: Cannon AFB, N.M.; Creech AFB, Nev.; Holloman AFB, N.M.; Hancock Field, N.Y. Planned: Ellsworth AFB, S.D.

Aircraft Location: Cannon AFB, N.M.; Creech AFB, Nev.; Eglin AFB, Fla.; Fort Drum, N.Y.; Holloman AFB, N.M.; Nellis AFB, Nev.

Contractor: General Atomics Aeronautical Systems; L3 Communications; Raytheon.

Power Plant: one Honeywell TPE331-10GD turboprop, max 900 shp.

Accommodation: GCS: pilot, sensor operator.

Dimensions: span 66 ft, length 36 ft, height 12.5 ft.

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,



MQ-9 Reaper (Lt. Col. Leslie Pratt)

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)

■ **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. FY15 funding would continue to support GCS and airframe capability development activities, including leveraging Gorgon Stare quick reaction capability; pursuing Block 5 (with two ARC-210 radios, high-definition MTS-B, and more); adding Step Stare mode to the EO/IR sensor; and modifying additional airframes to ER configuration.

OC-135 Open Skies

Brief: A modified C-135 aircraft that performs unarmed observation and verification flights over nations that are parties to the 1992 Open Skies Treaty.
Function: Observation aircraft.

Operator: ACC.

First Flight: 1993.

Delivered: 1993-96.

IOC: October 1993.

Production: three.

Inventory: two.

Aircraft Location: Offutt AFB, Neb.

Contractor: Boeing.

Power Plant: four Pratt & Whitney TF33-P-5 turbofans, 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 specialized arms control treaty observation and imagery collection missions with framing and panoramic optical cameras installed 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.

RC-26 Condor

Brief: Specially configured variant of the Fairchild SA227-DC C-26 Metro 23 with surveillance and communications equipment for use in domestic and overseas counterdrug efforts and for reconnais-

sance 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: n/a.

Production: 11.

Inventory: 11.

Aircraft Location: Ellington Field, Tex.; Fairchild AFB, Wash.; Fresno Yosemite Arpt., Calif.; Hancock Field, N.Y.; Jacksonville Arpt., Fla.; Key Field, Miss.; Kirtland AFB, N.M.; Montgomery Regional Arpt., Ala.; Truax Field, Wis.; Tucson Arpt., Ariz.; Yeager Arpt., W.Va.

Contractor: Fairchild (airframe).

Power Plant: two Garrett TPE331-12UAR-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.

Performance: speed 334 mph, range 2,070 miles.

COMMENTARY

Militarized ISR platform used primarily in counterdrug operations and increasingly during natural disasters such as hurricanes and wildfires. Provides real-time streaming video footage to ground personnel.

Extant Variant(s)

■ **RC-26B.** Specialized equipment includes state-of-the-art digital aerial cameras and an IR video camera. An extensive communications suite allows communications from 29 to 960 MHz, including provisions for plugging in 800 MHz handheld radios, and air phone capabilities. ANG is seeking funding to reconfigure Block 25 aircraft, which no longer meet either combatant commander or domestic requirements because of outdated and problematic mission management system, EO/IR sensor, and communication suite.

RC-135S Cobra Ball

Brief: A Masint collector equipped with special EO instruments for observing ballistic missile flights at long range.

Function: Electronic reconnaissance aircraft.

Operator: ACC.

First Flight: n/a.

Delivered: circa 1969-99.

IOC: circa 1972.

Production: converted.

Inventory: three.

Aircraft Location: Offutt AFB, Neb.

Contractor: Boeing (original airframe), L3 Communications.

Power Plant: four CFM International F108-CF-201 turbofans, each 21,600 lb thrust.

Accommodation: flight crew: two pilots, navigator. Mission crew: officer: three EWOs; enlisted: two airborne systems engineers, two airborne mission specialists.

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

Weight: max T-O 297,000 lb.

Ceiling: 45,000 ft.

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

COMMENTARY

Monitors missile-associated signatures and tracks missiles during boost and re-entry phases to provide reconnaissance for treaty verification and theater ballistic missile proliferation.

Extant Variant(s)

■ **RC-135S 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 EO reconnaissance for treaty verification and theater ballistic missile proliferation. Equipment includes wide-area IR sensors, long-range optical cameras, and an advanced communications suite.

RC-135U Combat Sent

Brief: Designed to collect technical intelligence on adversary radar emitter systems.

Function: Electronic reconnaissance aircraft.

Operator: ACC.

First Flight: n/a.

Delivered: circa 1970-78.

IOC: circa 1970s.

Production: converted.

Inventory: two.

Aircraft Location: Offutt AFB, Neb.

Contractor: Boeing (original airframe), L3 Communications, Textron.

Power Plant: four CFM International F108-CF-201 turbofans, each 21,600 lb thrust.

Accommodation: flight crew: two pilots, two navigators, two airborne systems engineers; mission crew: 10 EW officers, six or more electronic, technical, mission area specialists.

Dimensions: span 135 ft, length 140 ft, height 42 ft.

Weight: max T-O 299,000 lb.

Ceiling: 35,000 ft.



RC-26B Condor (SSgt. Marvin Cornell)

Performance: speed 500+ mph, range unlimited with air refueling.

COMMENTARY

Collects and examines data on airborne, land, and naval radar systems, providing strategic analysis for National Command Authorities and combatant forces. Distinctive antennae arrays on the chin and wing tips, large cheek fairings, and extended tail. Each airframe has slightly unique reconnaissance equipment.

Extant Variant(s)

■ RC-135U Combat Sent. Uses special Sigint suite to collect scientific and technical Elint data against air-, land-, and sea-based emitter systems. Critical to effective design, programming, and reprogramming of RWRs as well as jammers, decoys, and anti-radiation missiles and to the development of effective threat simulators.

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: n/a.

Delivered: circa 1973-99. Continuous equipment updates.

IOC: circa 1973.

Production: converted.

Inventory: eight RC-135V; nine RC-135W; three TC-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 turbofans, each 21,600 lb thrust.

Accommodation: flight crew: three pilots, two navigators; mission crew: three EW officers, 14 intelligence operators, four airborne maintenance technicians, and up to six more depending on mission.

Dimensions: 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.

COMMENTARY

Extensively modified C-135, performing worldwide reconnaissance missions to detect, identify, and geolocate signals throughout the electromagnetic spectrum.

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, measurement, identification, demodulation, geolocation, and fusion of data from potentially thousands of electronic emitters. Planned mods include sensor and mission planning system upgrades.

■ TC-135W. Used for training purposes.

RQ-4 Global Hawk

Brief: A high-altitude, long-range, long-endurance RPA.

Function: Unmanned surveillance and reconnaissance aircraft.

Operator: ACC.

First Flight: Feb. 28, 1998.

Delivered: from 1995 (ACTD 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.



RQ-4 Global Hawk (Northrop Grumman photo)

Dimensions: 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.

COMMENTARY

The system consists of an aircraft with an integrated sensor suite, LRE, MCE, and communications and mission planning equipment. (ACTD system used in Afghanistan and Iraq.)

Extant Variant(s)

■ Block 20 (Imint). Larger than original Block 10 (version retired in FY11), adding an enhanced integrated sensor suite (EISS) in an Imint-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. Supported combat operations in Afghanistan, Iraq, and Libya and humanitarian relief efforts following Japan's 2011 earthquake and massive tsunami. USAF now plans to sustain Block 30 and fund modernization efforts to enable operation beyond FY23.

■ Block 40. A multimission platform expected to provide SAR/MTI, Imint, and BMC2 support, utilizing the multipatform radar technology insertion program (MP-RTIP) AESA radar to simultaneously collect Imint on stationary ground targets and track ground moving targets. Delivery of final two Block 40 aircraft are due in FY14.

RQ-170 Sentinel

Brief: An LO RPA in development and test that has already flown in combat.

Function: Unmanned surveillance and reconnaissance aircraft.

Operator: ACC.

Aircraft Location: Tonopah Test Range, Nev.; GCS: Creech AFB, Nev.; Eglin AFB, Fla.

Contractor: Lockheed Martin.

COMMENTARY

Although the RQ-170 is still under development and test, USAF has employed it in Southwest Asia for Enduring Freedom. In December 2009, USAF publicly acknowledged the aircraft for the first time, after photos had appeared in foreign news media of its operations over Afghanistan.

Extant Variant(s)

■ RQ-170. No data available. Being developed in response to DOD call for additional RPA support to combatant commanders.

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.

First Flight: Aug. 4, 1955 (U-2); 1967 (U-2R); October 1994 (U-2S).

Delivered: 1955-October 1989.

IOC: circa 1956.

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

Inventory: 27 U-2; five TU-2 trainers.

Aircraft Location: Beale AFB, Calif.

Contractor: Lockheed Martin.

Power Plant: General Electric F118-GE-101 turbojet.

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



U-2 Dragon Lady (Lockheed Martin photo)

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 single-seat aircraft. Each current operational U-2 is in Block 20 configuration, featuring a new glass cockpit using MFDs, 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. With the FY15 budget, USAF announced plans to retire the U-2 fleet beginning in FY16.

■ 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.

First Flight: circa 1996 (production J model).

Delivered: September 1999-2002.

IOC: 2005.

Production: 10.

Inventory: 10.

Aircraft Location: Keesler AFB, Miss.

Contractor: Lockheed Martin.

Power Plant: four Rolls Royce AE2100D3 turbo-props, 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.

Ceiling: 28,000 ft.

Performance: speed 417 mph at 22,000 ft, range 1,841 miles with payload, endurance 18 hr at 300 mph.

COMMENTARY

Flown by AFRC's "Hurricane Hunters" to provide forecasting data for tropical disturbances and storms, hurricanes, and winter storms. An average mission lasts 11 hours and covers almost 3,500 miles. Configured with palletized weather instrumentation.

Extant Variant(s)

■ 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 effluent and debris samples in the atmosphere in support of the 1963 Limited Nuclear Test Ban Treaty.

Function: Air sampling and air collection.

Operator: ACC.

First Flight: 1965

Delivered: 1965-96.

IOC: December 1965.

Production: converted.

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

Program commissioned by Gen. Dwight D. Eisenhower on Sept. 16, 1947, using modified B-29 aircraft. In September 1949, a WB-29 flying between Alaska and Japan detected nuclear debris from the

Soviet Union's first atomic test, much earlier than anticipated. Today, the air-sampling mission supports the Limited Nuclear Test Ban Treaty of 1963.

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.

Tanker Aircraft

HC-130J Combat King II

Brief: An extended range version of the C-130J dedicated as a personnel recovery platform, designed to operate in hostile environments and provide C2 and helicopter in-flight refueling.

Function: Aerial refueling/transport.

Operator: ACC, AETC, ANG, AFRC.

First Flight: July 29, 2010.

Delivered: from 2010.

IOC: 2013.

Production: 37 planned.

Inventory: seven.

Aircraft Location: Davis-Monthan AFB, Ariz.; Kirtland AFB, N.M. Planned: Francis S. Gabreski Arpt., N.Y.; JB Elmendorf-Richardson, Alaska; Moody AFB, Ga.; Patrick AFB, Fla.

Contractor: Lockheed Martin.

Power Plant: four Rolls Royce AE2100D3 turbo-props, each 4,591 shp.

Accommodation: flight crew: two pilots, CSO, two loadmasters.

Dimensions: span 132.6 ft, length 97.8 ft, height 38.8 ft.

Weight: max T-O 164,000 lb.

Ceiling: 33,000 ft.

Performance: speed 363.4 mph at S-L, range 4,000+ miles.

COMMENTARY

Replacing HC-130N/Ps. Based on USMC KC-130J tanker baseline with enhanced service life wing and cargo handling system, boom refueling receptacle, EO/IR sensor, CSO console on flight deck, and dual satcom. Features also include INS/GPS, NVG-compatible lighting, FLIR, radar/missile warning receivers, and chaff and flare dispensers.

Extant Variant(s)

■ HC-130J. First ACC aircraft delivered to 79th RQS at Davis-Monthan Sept. 24, 2011; first training aircraft delivered to 58th SOW at Kirtland Sept. 29, 2011. Plans also would add the Lightweight Airborne Radio System V12 to speed locating personnel and add the ALQ 213 EW management system to automate/integrate defensive systems.

USAF expects to complete recapitalization and conversion efforts in 2023.

HC-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 (PJ) specialists and/or equipment in hostile environments.

Function: Aerial refueling/transport.

Operator: ACC, AETC, ANG, AFRC.

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

Delivered: from 1965.

IOC: 1986.

Production: 33 converted N/P models.

Inventory: nine HC-130N; 18 HC-130P.

Aircraft Location: Davis-Monthan AFB, Ariz.; Francis S. Gabreski Arpt., N.Y.; Kirtland AFB, N.M.; JB Elmendorf-Richardson, Alaska; Moody AFB, Ga.; Patrick AFB, Fla.

Contractor: Lockheed Martin.

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

Accommodation: officer: two pilots, navigator; enlisted: flight engineer, airborne comm specialist, two loadmasters, three PJs.

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 289 mph at S-L, range 4,000+ miles.

COMMENTARY

Conducts operations to austere airfields and denied territory for expeditionary, all-weather personnel recovery operations, including airdrop, air-land, helicopter air-to-air refueling and forward areas refueling point missions. Secondary roles include humanitarian assistance, disaster response, security cooperation/aviation advisory, emergency medical evacuation, noncombatant evacuation, and spaceflight support for NASA. Features include integrated GPS/INS navigation package, NVG lighting, FLIR, radar/missile warning receivers, chaff/flare countermeasures dispensers, and data-burst communications. Both models to be replaced by HC-130J.

Extant Variant(s)

■ HC-130N. C-130H model modified with C-130E model radome, new center wing section, and the capability to refuel helicopters aerially.

■ HC-130P. C-130H model modified to refuel helicopters aerially.

KC-10 Extender

Brief: A modified McDonnell Douglas DC-10 that combines in a single aircraft the operations of aerial refueling and long-range cargo and AE transport.

Function: Aerial refueling/transport.

Operator: AMC, AFRC (assoc.).

First Flight: April 1980.

Delivered: March 1981-April 1990.



HC-130 King (MSGt. Sean Mitchell)



KC-10 Extender (SSgt. J. G. Buzanowski)

IOC: August 1982.

Production: 60.

Inventory: 59.

Aircraft Location: JB McGuire-Dix-Lakehurst, N.J.; Travis AFB, Calif.

Contractor: McDonnell Douglas (now Boeing).

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

Accommodation: crew: two pilots, flight engineer, 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 165.4 ft, length 181.6 ft, height 58 ft.

Weight: max T-O 590,000 lb.

Ceiling: 42,000 ft.

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. Service life expected through 2045, but USAF signaled in its FY15 budget request that it would divest the fleet if necessary to sustain investment priorities such as the KC-46.

KC-46

Brief: 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: late 2014 (planned).

Delivered: from 2017 (planned).

IOC: TBD.

Production: 179 (planned).

Inventory: zero.

Aircraft Location: TBD.

Contractor: Boeing.

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

Accommodation: 15 crew seats, incl AE 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.

Ceiling: 43,000 ft (767).

Performance: (767) cruise speed 530 mph, range

6,500 miles.

COMMENTARY

Boeing awarded contract for 179 KC-46A tankers, the first increment (KC-X) toward replacing USAF's KC-135R fleet, on Feb. 24, 2011. Compared to 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. Development continues. Initial flight expected in late 2014. LRIP of seven aircraft slated to begin in FY15.

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: AETC, AFMC, AMC, PACAF, USAFE-AFACR, ANG, AFRC.

First Flight: August 1956.

Delivered: January 1957-65.

IOC: June 1957, Castle AFB, Calif.

Production: 732.

Inventory: 354 KC-135R; 54 KC-135T.

Aircraft Location: Altus AFB, Okla.; Fairchild AFB, Wash.; Grissom ARB, Ind.; JB Andrews, Md.; Kadena AB, Japan; MacDill AFB, Fla.; March ARB, Calif.; McConnell AFB, Kan.; RAF Mildenhall, UK; Seymour Johnson AFB, N.C.; Tinker AFB, Okla.; and ANG in Alabama, Arizona, Illinois, Iowa, Kansas, Maine, Michigan, Mississippi, Nebraska, New Hampshire, New Jersey, Ohio, Oklahoma, Pennsylvania, Tennessee, Utah, Washington, Wisconsin.

Contractor: Boeing.

Power Plant: four CFM International CFM56-2 (USAF designation F108) 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 322,500 lb.

Ceiling: 50,000 ft.

Performance: speed 530 mph; range 1,500 miles with 150,000 lb transfer fuel, up to 11,015 miles for ferry mission.

COMMENTARY

Mainstay of the USAF tanker fleet for some 50 years, similar in size and appearance to commercial 707 aircraft but designed to military specifications.

Extant Variant(s)

■ KC-135R. Re-engined KC-135As with CFM turbofan engines. Can operate from relatively short runways. First flight October 1982; 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. Upgrades include Pacer CRAG avionics and Block 30 safety mods (completed 2002) and GATM mod (completed 2011). Link 16 capability also added to a limited number. FY15 budget would fund repairs to the now 10-year-old Pacer CRAG mods. Fleet service life projected to 2045.

■ KC-135T aircraft (formerly KC-135Q) can carry different fuels in the wing and body tanks. Under same upgrade programs as R models.

Transports

C-5 Galaxy

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

Function: Cargo and troop transport.

Operator: AMC, ANG, AFRC.

First Flight: June 30, 1968.

Delivered: October 1969-April 1989.

IOC: September 1970.

Production: 131.

Inventory: 31 C-5A; 29 C-5B; two C-5C; 10 C-5M.

Aircraft Location: Dover AFB, Del.; Eastern West Virginia Arpt., W.Va.; JBSA-Lackland, Tex.; Memphis Arpt., Tenn.; Stewart ANGB, N.Y.; Travis AFB, Calif.; Westover ARB, Mass.; Wright-Patterson AFB, Ohio.

Contractor: Lockheed Martin.

Power Plant: four General Electric TF39-GE-1C turbofans, each 43,000 lb thrust; (C-5M) four General Electric F138-GE-100 turbofans.

Accommodation: crew: two pilots, two flight engineers, three loadmasters. Load: 81 troops and 36 standard pallets, max 270,000 lb. There is no piece of Army combat equipment the C-5 can't carry.

Dimensions: span 222.9 ft, length 247.1 ft, height 65.1 ft.

Weight: max T-O 840,000 lb.



KC-135 Stratotanker (SrA. Amber Russell)



C-5 Galaxy (SrA. Kelly Galloway)

Ceiling: 45,000 ft.

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

COMMENTARY

USAF's largest airlifter. One of world's largest aircraft. Can carry unusually heavy cargo over intercontinental ranges at jet speeds, take off and land in relatively short distances, taxi on substandard surfaces in emergencies. Front and rear cargo openings permit simultaneous drive-through loading and off-loading.

Extant Variant(s)

■ C-5A. Basic model; 81 delivered 1969-73. Has undergone a major wing mod, extending service life by 30,000 flight hours. Incorporates avionics subsystems developed for C-5B. USAF has begun retiring A models. One airframe converted to M model.

■ C-5B. Embodies all improvements since completion of C-5A production, including strengthened wings, improved turbofans, and improved avionics, with color weather radar and triple INS. First flight September 1985. First delivery in January 1986. Some models equipped with defensive system. Under current plan, 49 B models convert to M model.

■ C-5C. Two A variants modified to carry outside space cargo for NASA. Both airframes would convert to M models.

■ C-5M. Upgraded aircraft called Super Galaxy. Received latest avionics (under Avionics Modernization Program) and new GE CF6-80C2 (F138-GE-100) turbofans, with 200 percent increase in thrust. Equipped with other components installed under the Reliability Enhancement and Re-engining Program (RERP). First flight June 6, 2006. Developmental testing completed August 2008. Operational testing and evaluation concluded in 2010. First flight of production C-5M September 2010. USAF plans to modernize a total of 52 C-5s to the new C-5M standard, with delivery expected through FY17.

C-12 Huron

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

Function: Special airlift.

Operator: AFMC, PACAF.

First Flight: Oct. 27, 1972 (Super King Air 200).

Delivered: 1974-late 1980s.

IOC: circa 1974.

Production: 88.

Inventory: 13 C-12C; three C-12D; two C-12F; four C-12J.

Aircraft Location: Edwards AFB, Calif.; Holloman AFB, N.M.; JB Elmendorf-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.

COMMENTARY

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 model, with larger cargo doors and stronger wing. Also deployed to US embassies.

■ C-12F. With uprated PT6A-42 engines, up to eight passengers, accommodates AE litters.

■ C-12J. A military version of the larger Beechcraft Model 1900C, operated by PACAF. Can also transport two litters or 10 ambulatory patients for AE. Extensive avionics upgrade, including three MFDs, three integrated GPS, two flight management systems, new autopilot, VHF/UHF radios, and weather radar.

C-17 Globemaster III

Brief: A heavy-lift, air refuelable cargo transport for intertheater (strategic) and intratheater (tactical) direct delivery airlift of all classes of military cargo.

Function: Cargo and troop transport.

Operator: AETC, AFMC, AMC, PACAF, ANG, AFRC.

First Flight: Sept. 15, 1991.

Delivered: June 1993-September 2013.

IOC: Jan. 17, 1995.

Production: 223.

Inventory: 218.

Aircraft Location: Allen C. Thompson Field, Miss.; Altus AFB, Okla.; Dover AFB, Del.; Edwards AFB, Calif.; JB Charleston, S.C.; JB Elmendorf-Richardson, Alaska; JB Lewis-McChord, Wash.; JB McGuire-Dix-Lakehurst, N.J.; JB Pearl Harbor-Hickam, Hawaii; March ARB, Calif.; Travis AFB, Calif. Planned: Wright-Patterson AFB, Ohio.

Contractor: Boeing.

Power Plant: four Pratt & Whitney F117-PW-100 turbofans, each 40,440 lb thrust.

Accommodation: flight crew: two pilots, loadmaster; AE crew: two flight nurses, three medical technicians (altered as required). Load: 102 troops/paratroops; 36 litter and 54 ambulatory patients; 18 pallet positions; max payload 170,900 lb.

Dimensions: span 169.8 ft, length 174 ft, height 55.1 ft.

Weight: max T-O 585,000 lb.

Ceiling: 45,000 ft.

Performance: speed 518 mph at 25,000 ft, range

2,760 miles with 169,000 lb payload.

COMMENTARY

Core airlifter of US military. Able to operate on small, austere airfields (3,500 ft by 90 ft) previously limited to C-130. Only aircraft able to directly air-land or air-drop outside cargo into a tactical environment. First military transport to feature a full digital fly-by-wire control system.

Extant Variant(s)

■ C-17A. Ongoing modernization of original aircraft through Block 17. Improvements include open-system communications architecture, new weather radar, all-weather formation flying system, NVG lighting, HF data link. Full retrofit to Block 17 to be completed by FY15. Additional planned mods include an advanced IFF system and other software upgrades to meet new operational requirements. Boeing delivered the 223rd aircraft (TAI inventory as of FY13 still at 218) to USAF on Sept. 12, 2013, and expects to end production in 2015 after completing its final international order.

C-20 Gulfstream

Brief: A twin-engine turbofan aircraft acquired to provide airlift for high-ranking government and DOD officials.

Function: Operational support airlift, special air missions.

Operator: AMC, USAFE-AFACRICA.

First Flight: December 1979.

Delivered: September 1983-89.

IOC: circa 1983.

Production: n/a.

Inventory: five C-20B; three C-20C; two C-20H.

Aircraft Location: JB Andrews, Md.; Ramstein AB, Germany.

Contractor: Gulfstream.

Power Plant: two Rolls Royce Spey MK511-8 turbofans (C-20B), each 11,400 lb thrust; two Rolls Royce Tay MK611-8 turbofans (C-20H), each 13,850 lb thrust.

Accommodation: crew: two pilots, flight engineer, communication system operator, flight attendant. Load: 12 passengers.

Dimensions: span 77.8 ft, length 83.1 ft (B), 88.3 ft (H), height 24.5 ft.

Weight: max T-O 69,700 lb (B), 74,600 lb (H).

Ceiling: 45,000 ft.

Performance: speed 576 mph; range 4,250 miles (B), 4,850 miles (H).

COMMENTARY

C-20A/B models initially acquired to replace C-140B Jetstar aircraft.

Extant Variant(s)

■ C-20B. With advanced mission communications equipment and revised interior, delivered in 1988.

■ C-20H. Gulfstream IV SP aircraft, with advanced technology flight management systems and upgraded Rolls Royce engines acquired 1992. Equipped with GPS, vertical separation equipment, GATM, and traffic collision avoidance system (TCAS).

C-21 Learjet

Brief: Aircraft designed to provide cargo and passenger airlift and transport litters during AE.

Function: Pilot seasoning, passenger and cargo airlift.

Operator: AETC, AMC, USAFE-AFACRICA, ANG.

First Flight: January 1973.



C-17 Globemaster III (MSgt. John R. Nimmo Sr.)

Delivered: April 1984-October 1985.

IOC: April 1984.

Production: 84.

Inventory: 47.

Aircraft Location: JB Andrews, Md.; Peterson AFB, Colo.; Ramstein AB, Germany; Scott AFB, Ill.

Contractor: Gates Learjet.

Power Plant: two AlliedSignal TFE731-2 turbofans, each 3,500 lb thrust.

Accommodation: crew: two pilots; AE crew: 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.

COMMENTARY

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 HF/VHF/UHF radios.

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.

Production: 38 (planned).

Inventory: 13.

Aircraft Location: Bradley Arpt., Conn.; Hector Arpt., N.D.; Key Field, Miss.; Mansfield Lahm Arpt., Ohio; Martin State Arpt., Md.; W. K. Kellogg Arpt., Mich.

Contractor: L-3 Communications.

Power Plant: two Rolls Royce AE 2100-D2 turboprops, rated at 4,637 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 374 mph, range 1,150 miles with 22,046 lb payload.

COMMENTARY

Derivative of Alenia G.222, selected in 2007 to fulfill the Joint Cargo Aircraft requirement. Acquired to support ground forces served only by the most basic airstrips or for missions where the C-130 would operate at half-load capacity. With USAF decision to divest all C-27Js, USSOCOM planned to take some, and Congress directed in the FY14 National Defense Authorization Act that the remainder go to Homeland Security for use by the Coast Guard.

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 members, and other high-ranking US and foreign officials.

Function: VIP air transport.

Operator: AMC, ANG.

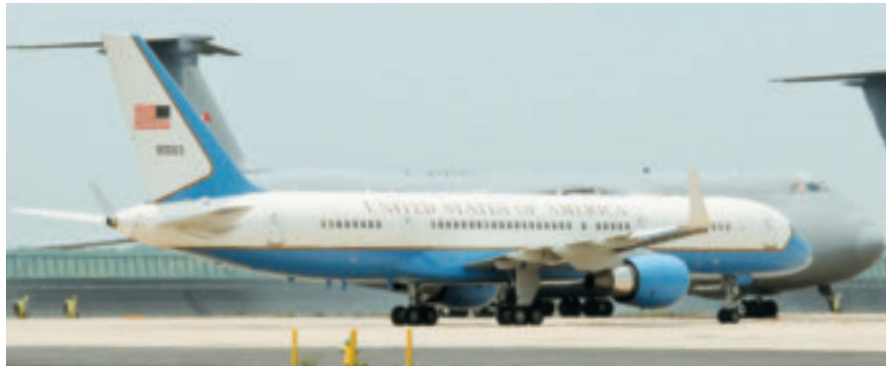
First Flight: Feb. 19, 1982 (USAF Feb. 11, 1998).

Delivered: June-December 1998.

IOC: 1998.

Production: six.

Inventory: four.



C-32A Air Force Two (TSgt. Michael O'Halloran)

Aircraft Location: JB Andrews, Md.

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 124.6 ft, length 155.2 ft, height 44.5 ft.

Weight: max T-O 255,000 lb.

Ceiling: 42,000 ft.

Performance: speed 530 mph, range 6,325 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-37 Gulfstream V

Brief: Modified Gulfstream aircraft used for worldwide special air missions for high-ranking government and DOD officials.

Function: VIP air transport.

Operator: AMC, PACAF, USAF-AF-AFRICA.

First Flight: USAF October 1998.

Delivered: from October 1998.

IOC: Dec. 9, 1998.

Production: 10 C-37A; two C-37B.

Inventory: eight C-37A; three C-37B.

Aircraft Location: Chievres, Belgium; JB Andrews, Md.; JB Pearl Harbor-Hickam, Hawaii; MacDill AFB, Fla.

Contractor: Gulfstream.

Power Plant: two BMW/Rolls Royce BR710A1-10 turbofans, each 14,750 lb thrust.

Accommodation: crew: five. Load: up to 12 passengers.

Dimensions: span 93.5 ft, length 96.4 ft, height

25.8 ft.

Weight: max T-O 90,500 lb.

Ceiling: 51,000 ft.

Performance: speed 600 mph, range 6,300 miles.

COMMENTARY

Military versions of "ultralong range" Gulfstream business aircraft.

Extant Variant(s)

■ C-37A. Military version of Gulfstream V. Includes separate VIP and passenger areas and a communications system capable of worldwide clear and secure voice and data. Features include enhanced weather radar, autopilot, and advanced HUD.

■ C-37B. Military version of the Gulfstream 550, modified for VIP duties. Has Honeywell PlaneView flight deck. Upgrades include a directional IR countermeasures system.

C-38 Courier

Brief: A twin-engine transcontinental aircraft used to provide VIP transportation for congressional or high-ranking military members.

Function: VIP air transport and operational support.

Operator: ANG.

First Flight: 1998.

Delivered: April-May 1998.

IOC: 1998.

Production: two.

Inventory: two.

Aircraft Location: JB Andrews, Md.

Contractor: Tracor (Israel Aircraft Industries Ltd).

Power Plant: two AlliedSignal TFE731-40R-200G, each 4,250 lb thrust.

Accommodation: crew: two pilots. Load: up to eight passengers or, for AE role, two Spectrum 500 Life Support Units and two medical attendants; all seats removable for cargo.

Dimensions: span 54.6 ft, length 55.6 ft, height 18.2 ft.

Weight: max T-O 24,800 lb.

Ceiling: 33,000 ft.

Performance: speed 662 mph, range 3,000 miles.

COMMENTARY

Military version of Astra SPX produced by IAI and supported worldwide by Galaxy Aerospace.

Extant Variant(s)



C-37A Gulfstream V (A1C Brea Miller)

■ C-38A. Acquired in 1998. Equipment includes modern avionics, navigation, communication, vertical separation, and safety equipment.

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, USAF-AFACRICA, ANG, AFRC.

First Flight: USN C-40A: April 14, 1999.

Delivered: 2002.

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 89 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 HUD. 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, including sleep 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 paratropping of troops and equipment into hostile areas.

Function: Inter- and intratheater airlift.

Operator: AETC, AMC, PACAF, USAF-AFACRICA, ANG, AFRC.

First Flight: August 1954 (C-130A).

Delivered: December 1956-present (C-130J).

IOC: circa 1958.

Production: more than 2,200.

Inventory: six C-130E; 273 C-130H; 92 C-130J.

Aircraft Location: Dobbins ARB, Ga.; Dyess AFB, Tex.; Keesler AFB, Miss.; Little Rock AFB, Ark.; Maxwell AFB, Ala.; Minneapolis-St. Paul Arpt./ARS, Minn.; Niagara Falls Arpt., N.Y.; Peterson AFB, Colo.; Pittsburgh Arpt., Pa.; Pope Field, N.C.; Ramstein AB, Germany; Yokota AB, Japan; Youngstown ARS, Ohio; and ANG in Alaska, Arkansas, California, Delaware, Georgia, Hawaii, Illinois, Kentucky, Minnesota, Missouri, Nevada, New York, North Carolina, Ohio, Puerto Rico, Rhode Island, Tennessee, Texas, West Virginia, Wyoming.

Contractor: Lockheed Martin.

Power Plant: four Allison T56-A-7 turboprops (C-130E), 4,200 shp; four Allison T56-A-15 turboprops (C-130H), each 4,591 shp; four Rolls Royce AE2100D3 turboprops (C-130J), each 4,700 shp.

Accommodation: E/H crew: two pilots, navigator, flight engineer, loadmaster. J/J-30 crew: two pilots, loadmaster. E/H/J load: up to 92 combat troops or 64 paratroopers or 74 litters or six 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 paratroopers or 97 litters or eight pallets or 24 CDS bundles or any combination of these up to max weight.

Dimensions: span 132.6 ft, length 97.8 ft, height 38.8 ft.; J-30 length 112.8 ft.

Weight: max T-O 155,000 lb (E/H/J), 164,000 lb (J-30); max payload 42,000 lb (E/H/J), 44,000



C-130 Hercules (A1C Rusty Frank)

lb (J-30).

Ceiling: with max payload, 19,000 ft (E), 23,000 ft (H), 26,000 ft (J), 28,000 (J-30).

Performance: speed 345 mph (E), 366 mph (H), 417 mph (J), 410 mph (J-30); range with 35,000 lb payload 1,438 miles (E), 1,496 miles (H), 1,841 miles (J), 2,417 miles (J-30).

COMMENTARY

All-purpose theater transport that operates throughout USAF, performing diverse roles. Missions include tactical and intertheater airlift and airdrop support, Arctic resupply, AE flights, aerial spraying, firefighting duties for the US Forest Service, and natural disaster and humanitarian relief missions. FY15 budget would fund minimal safety-of-flight communication/navigation systems upgrade, following FY13 decision to terminate full Avionics Modernization Program.

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.

■ C-130J-30. Stretch version of the J model capable of larger payload. ANG began receiving J-30 models in 2001, Active Duty and AFRC units 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.

COMMENTARY

Aircraft are equipped with staff work areas, a conference room, a general seating area, and an executive office. Communications capability includes worldwide secure and clear communications equipment.

Extant Variant(s)



VC-25 Air Force One (Photographer's Mate 2nd Class Daniel J. McLain)



HH-60 Pave Hawk (TSgt. Matt Hecht)

■ VC-25A. Flown by the Presidential Airlift Group at the 89th AW. FY15 budget request supports ongoing modifications to extend service life beyond the approximately five years remaining.

Helicopters

HH-60 Pave Hawk

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

Function: Personnel recovery medium-lift helicopter.

Operator: ACC, AETC, AFMC, PACAF, USAF-AFACRICA, ANG, AFRC.

First Flight: October 1974.

Delivered: from 1982.

IOC: circa 1982.

Production: 105.

Inventory: 99.

Aircraft Location: Davis-Monthan AFB, Ariz.; Eglin AFB, Fla.; Francis S. Gabreski Arpt., N.Y.; JB Elmendorf-Richardson, Alaska; Kadena AB, Japan; 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: two General Electric T700-GE-700/701C turboshafts, each 1,560-1,940 shp.

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

Dimensions: rotor diameter 53.6 ft, overall length 64.7 ft, height 16.7 ft.

Weight: max T-O 22,000 lb.

Ceiling: 14,000 ft.

Performance: speed 184 mph; range 580 miles.

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

COMMENTARY

A highly modified Black Hawk helicopter, USAF acquired the HH-60G in the early 1980s and has been in continuous use by Active Duty, ANG, and AFRC air rescue units. Future plans call for a new Combat Rescue Helicopter, with contract award now expected in summer 2014.

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. FY 15 funding would continue mission-critical avionics and safety of flight mods.

UH-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.

Function: Light-lift utility and training helicopter.

Operator: AETC, AFDW, AFGSC, AFMC, AFSOC, AMC, PACAF.

First Flight: 1956.

Delivered: from September 1970 (UH-1N).

IOC: circa 1970.

Production: 20 TH-1H; many UH-1H; 79 UH-1N.

Inventory: 25 TH-1H; three UH-1H; 43 UH-1N.

Aircraft Location: Eglin AFB, Fla.; Fairchild AFB, Wash.; F. E. Warren AFB, Wyo.; Fort Rucker, Ala.; Hurlburt Field, Fla.; JB Andrews, Md.; Kirtland AFB, N.M.; Malmstrom AFB, Mont.; Minot AFB, N.D.; Yokota AB, Japan.

Contractor: Bell, Lockheed Martin (TH-1H prime).

Power Plant: TH-1H: one Honeywell T53-L-703 turboshaft, 1,800 shp. UH-1H: one Lycoming T53-L-13B turboshaft, 1,400 shp. UH-1N: two Pratt & Whitney Canada T400-CP-400 turboshafts, 1,290 shp.

Accommodation: UH-1N 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: TH-1H: rotor diameter 48.0 ft, length 57 ft, height 13 ft. UH-1H: rotor diameter 48.3 ft, length 57.1 ft, height 13.6 ft. UH-1N: rotor diameter 48 ft, length 57.1 ft, height 12.8 ft.

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

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

Performance: (UH-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

UH-1N aircraft initially provided search-and-rescue capabilities, and then began replacing the UH-1Hs at missile wings and taking on other missions. With termination of the Common Vertical Lift Support Program (CVLSP) (also called the Common Support Helicopter), USAF may fly the 40-year-old UH-1N for at least another 10 years. USAF continues conversion/modernization of UH-1H models to TH-1H variant, providing a service life of at least 20 years.

Extant Variant(s)

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

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

■ UH-1N. Military version of the Bell 212. Most used for ICBM security and administrative/VIP 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 CVLSP termination, AFGSC plans to provide selective mods, including an NVG-capable cockpit, upgraded sensors, and safety and sustainment improvements to extend fleet life and usefulness.

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 CSOs.

Function: Advanced pilot training.

Operator: AETC, AFRC.

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

Delivered: Jan. 17, 1992-July 1997.

IOC: January 1993.

Production: 180.

Inventory: 178.

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

Contractor: Hawker Beechcraft.

Power Plant: two Pratt & Whitney Canada JT15D-5B turbofans, each 2,900 lb thrust.

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

Dimensions: span 43.5 ft, length 48.4 ft, height 13.9 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

Brief: A single-engine turboprop aircraft used for primary pilot training for Air Force and Navy pilots.

Function: Primary trainer.

Operator: AETC, USN.

First Flight: July 15, 1998.

Delivered: from May 2000 (operational aircraft). **IOC:** November 2001.

Production: Planned: 452 (USAF); 315 (USN).

Inventory: 445 (USAF).

Aircraft Location: USAF: Columbus AFB, Miss.; Laughlin AFB, JBSA-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: 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 seat, and advanced avionics package with sunlight readable LCDs. USAF production completed in 2010 with an expected service life of 21 years from that date. FY15 budget request includes modifications to prevent avionics obsolescence.

■ **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. Planned buy is 252 aircraft. Navy's B model reached IOC in April 2010.

T-38 Talon

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).

Function: Trainer.

Operator: ACC, AETC, AFMC, AFRC.

First Flight: April 1959.

Delivered: 1961-72.

IOC: March 1961.

Production: more than 1,100.

Inventory: 54 T-38A; 448 T-38C.

Aircraft Location: Beale AFB and Edwards AFB, Calif.; Columbus AFB, Miss.; Holloman AFB, N.M.; JB Langley-Eustis, Va.; JBSA-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 now 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 regenerated T-38s as dedicated aggressor aircraft for F-22 training.

Extant Variant(s)

■ **T-38A.** Close in structure to the F-5A export tactical fighter. World's first supersonic trainer aircraft. Underwent structural renewal in successive Pacer Classic I and II mods, first begun in 1984, to extend service life.

■ **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. Ongoing upgrades include Pacer Classic III, the latest structural renewal effort, which will replace major longerons, bulkheads/formers, internal skins, and structural floors. Service life expected to 2020.

T-41 Mescalero

Brief: Short-range, high-wing trainer used primarily for aerodynamic and navigation courses.

Function: Training, support.

Operator: AETC.

Delivered: 1968.

Inventory: four.

Aircraft Location: US Air Force Academy, Colo.

Contractor: Cessna.

Power Plant: one Continental IO-360-DB piston engine, 210 hp.

Accommodation: two, side by side.

Dimensions: span 36.1 ft, length 26.5 ft, height 8.9 ft.

Weight: max T-O 2,550 lb.



T-38A and T-38C Talons (Bobbi Zapka)

Ceiling: 14,000 ft.

Performance: speed 182 mph, range 630 miles.

COMMENTARY

Used primarily by US Air Force Academy.

Extant Variant(s)

■ **T-41C.** Military version of Cessna 172. All-metal, strut-braced high-wing monoplane. Equipped with modern avionics, GPS, and other equipment appropriate to its mission. Used for Aero 456 flight testing, USAFA flying team support, orientation flights.

T-51 Cessna

Brief: A short-range, high-wing aircraft used primarily by the USAFA Flying Team during inter-collegiate competitions.

Function: Training, competition.

Operator: AETC.

Delivered: 1970s.

Inventory: three.

Aircraft Location: USAFA, Colo.

Contractor: Cessna.

Power Plant: one Lycoming O-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.

T-53

Brief: A Cirrus SR20 personal aircraft with advanced avionics and safety features for USAFA's Powered Flight Program.

Function: Training.

Operator: AETC.

Delivered: 2012.

Inventory: 24.

Aircraft Location: USAFA, Colo.

Contractor: Cirrus.

Power Plant: one Continental IO-360-ES six-cylinder, fuel-injected, air-cooled engine, 200 hp.

Accommodation: two, side by side, plus three passengers.

Dimensions: span 38.3 ft, length 26 ft, height 8.9 ft.

Weight: max T-O 3,050 lb.

Ceiling: 17,500 ft.

Performance: speed 178 mph, range 690 miles.

COMMENTARY

Military designation for civilian Cirrus SR20. All-composite monoplane.

Extant Variant(s)

■ **T-53A.** The aircraft is equipped with modern avionics, GPS, and Cirrus Airframe Parachute System, integrated fuselage roll cage, cuffed wing design, and other active and passive safety systems and features that are standard on Cirrus aircraft.

TG-15 Duo Discus/Duo 2B

Brief: Sailplane used for advanced cross-country training and competition.

Function: Trainer/cross-country competition sailplane.

Operator: AETC.

Inventory: two (A); three (B).

Aircraft Location: USAFA, Colo.

Contractor: Schempp-Hirth, Germany.

Accommodation: two-seat (A), single-seat (B).

Dimensions: span 65.6 ft (A), 49.2 ft (B); length 28.3 ft (A), 22.3 ft (B).

Weight: 1,543 lb (A), 1,157 lb (B).

Performance: max permitted speed 155 mph.

COMMENTARY

Sailplanes manufactured by Schempp-Hirth of Germany. Used for cross-country soaring training and Soaring Society of America national competitions.

Extant Variant(s)

■ **TG-15A.** Two-seat variant.

■ **TG-15B.** Single-seat variant.

TG-16 Club

Brief: German-built glider used for training and aerobatic competition.

Function: Trainer/aerobatic glider.



TG-16A Club (Rob Densmore)

Operator: AETC.
Inventory: 19 (A).
Aircraft Location: USAFA, Colo.
Contractor: DG-Flugzeugbau, Germany.
Accommodation: two-seat.
Dimensions: span 59.1 ft; length 28.4 ft.
Weight: max T-O 1,653 lb.
Performance: max permitted speed 167.9 mph.
COMMENTARY
 DG-Flugzeugbau received contracts in 2011 for five aerobatic trainers and 14 basic trainers based on its DG-1001 glider. TG-16A has longer wingspan and greater glide ratio (42 to 1) providing increased performance over the TG-10 (28 to 1) model it replaces. It also has an extended service life.
Extant Variant(s)
 ■ TG-16A. Fixed landing gear variant of DG-1001 Club glider series.

UV-18 Twin Otter
Brief: Modified utility transport used for parachute jump training.
Function: Paratroop.
Operator: AETC.
First Flight: May 1965 (commercial version).
Delivered: 1977 (two); 1982 (one).
IOC: 1977.
Production: three.
Inventory: three.
Aircraft Location: USAFA, Colo.
Contractor: De Havilland Aircraft of Canada.
Power Plant: two Pratt & Whitney Canada PT6A-27 turboprops, each 620 ehp.
Accommodation: crew: two pilots; load: up to 20 passengers.
Dimensions: span 65 ft, length 51.9 ft, height 18.7 ft.
Weight: max T-O 12,500 lb.
Ceiling: 25,000 ft.
Performance: speed 210 mph, range 806 miles.
COMMENTARY
 Used at USAFA to support various parachuting activities and perform general utility missions. Used by the Air Force Parachute Team, The Wings of Blue.
Extant Variant(s)
 ■ UV-18B. Military variant of the civilian DeHavilland DHC-6 Twin Otter.

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.
IOC: December 1982, Griffiss AFB, N.Y.
Production: 1,715.
Unit Location: Andersen AFB, Guam (conventional only); Barksdale 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 penetrating warhead (D).
Dimensions: span 12 ft, length 20.8 ft, body diameter 2 ft.
Weight: 3,150 lb.
Performance: speed 550 mph (B), high subsonic (C/D); range 1,500+ miles (B), 690 miles (C/D).
COMMENTARY
 Programmed to conduct strategic attack—nuclear or conventional—on surface targets. Small radar signature and low-level flight capability enhance the missile's effectiveness.
Extant Variant(s)
 ■ AGM-86B. First production version. Last of 1,715 delivered in 1986. Undergoing several SLEP phases to extend service life to 2030. USAF to cut inventory to 528 and consolidate at Minot. Although the FY 15 budget would delay the follow-on Long-Range Standoff (LRSO) missile for three



Minuteman III (MSgt. Lorenzo Gaines)

years, USAF is continuing with risk reduction and early systems engineering work.
 ■ AGM-86C. Conventional warhead version, called CALCM. Some 600 B models converted; initial deliveries in 1987. Few remain in inventory. First used operationally in Desert Storm; used widely in subsequent combat operations. Provides adverse weather, day/night, air-to-surface, accurate, standoff strike capability. Range greater than 500 miles. Block 1A enhancements offer improved accuracy and increased immunity to electronic jamming.
 ■ AGM-86D. CALCM Block II penetrator version with AUP-3(M) warhead. Provides standoff capability against hardened, deeply buried targets. Used with success in Southwest Asia operations.

LGM-30 Minuteman
Brief: A solid-fuel ICBM capable of being fired from silo launchers and delivering a thermonuclear payload of one to three warheads with high accuracy over great distances.
Function: Strategic surface-to-surface ballistic missile.
Operator: AFGSC.
First Flight: February 1961.
Delivered: 1962-December 1978.
IOC: December 1962, Malmstrom AFB, Mont.
Production: 1,800.
Unit Location: F. E. Warren AFB, Wyo.; Malmstrom AFB, Mont.; Minot AFB, N.D.
Contractor: Boeing.
Power Plant: stage 1: Thiokol M-55 solid-propellant motor, 202,600 lb thrust; stage 2: Aerojet General SR19-AJ-1 solid-propellant motor, 60,721 lb thrust; stage 3: Thiokol SR73-AJ-1 solid-propellant motor, 34,400 lb thrust.
Guidance: inertial guidance system.
Warhead: one Mk 21 RV or one-three Mk 12/12A MIRVs.
Dimensions: length 59.9 ft, diameter 5.5 ft.
Weight: weight 79,432 lb.
Performance: speed at burnout approx 15,000 mph, range 6,000+ miles.
COMMENTARY
 Three-stage, solid-propellant ICBM in underground silo. Sole remaining US land-based ICBM. Major life extension program ensures viability to 2020. Ongoing mods, including updated warhead fuzes and start of guidance and propulsion mod programs, would extend that to 2030.
Extant Variant(s)
 ■ LGM-30G. Minuteman III became operational in

1970, providing improved range, rapid retargeting, and the capability to place three re-entry vehicles on three targets with a high accuracy. USAF initially deployed 550, later reducing to 500 based at Malmstrom, Minot, and Warren. Deactivation of a further 50 completed in July 2008.

Tactical Missiles and Weapons

ADM-160 Miniature Air Launched Decoy
Brief: Air-launched programmable air vehicle that stimulates, dilutes, and confuses the enemy's integrated air defense system (IADS) by transmitting radio frequency energy that duplicates combat flight profiles and signatures of US and allied aircraft. Jammer version operates alone or in concert with other EW platforms.
Function: Aircraft decoy; close-in radar jammer.
First Flight: 1999 (MALD); 2009 (MALD-J).
Delivered: from September 2012 (MALD-J).
IOC: n/a.
Contractor: Raytheon.
Guidance: GPS/INS.
Dimensions: span 5.6 ft (extended), length 9.3 ft
Weight: less than 300 lb.
Performance: range up to 575 miles; endurance: 90 minutes (50 minutes on-station loiter).
COMMENTARY
 MALD is a low-cost, state-of-the-art, modular, autonomous, and programmable flight vehicle that looks like US or allied aircraft to enemy IADS. MALD-J, the first stand-in jammer to enter production, adds radar-jamming capability to the basic decoy platform. F-16C/D or B-52 are lead employment aircraft. USAF capped MALD procurement in FY 12, converting Lot 4 to the MALD-J variant. Plans call for a total of 3,000, with 2,400 in the jammer version.
Extant Variant(s)
 ■ ADM-160B MALD. DARPA initiated an ACTD program for MALD to respond to an ACC SEAD mission needs statement. First flight was Jan. 9, 1999.
 ■ ADM-160C MALD-J. Jammer version fills the stand-in jamming gap for the airborne electronic attack mission. Designed as an expendable, close-in jammer to degrade and deny an early warning or acquisition radar's ability to establish a track on strike aircraft, it also maintains the ability to fulfill the basic decoy mission.



AIM-120 AMRAAM (Lockheed Martin photo/Paul Weatherman)

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.

IOC: February 1973.

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.

COMMENTARY

First employed during Vietnam War; used extensively in Desert Storm and Iraqi 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 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, adverse weather limits 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-65G. Uses IIR seeker with software mods to track larger targets. Employs heavyweight penetrator warhead. Has digital autopilot and a pneumatic actuation system. First delivered in 1989.

■ AGM-65H. Upgraded B variant to increase capability. Undergoing tracker upgrade.

■ AGM-65K. Modified G variant, replacing IR guidance system with EOTV 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 semiactive 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.

Function: Air-to-surface anti-radiation missile.

First Flight: April 1979.

Delivered: 1982-98.

IOC: circa 1984.

Contractor: Raytheon.

Power Plant: Thiokol dual-thrust, solid-propellant rocket motor.

Guidance: proportional with fixed antenna and seeker head in missile nose.

Warhead: HE 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. In late 2013 Raytheon began HARM Control Section Mod (HCSM) that will convert current models to new F model, with GPS and improved inertial measurement unit.

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.

First Flight: December 1994.

Delivered: 2000-2005 (USAF).

IOC: 2000 (USAF).

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.

Extant Variant(s)

■ AGM-154A. The baseline BLU-97 CEM variant for use against soft and area targets.

■ AGM-154B. The BLU-108 variant provides anti-armor 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).

IOC: September 2003.

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 non-hardened 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. Currently integrated only on the B-1B. Full rate production planned for FY15.

AIM-9 Sidewinder

Brief: A supersonic, short-range, IR guided air-to-air missile with HE warhead, carried by fighter aircraft.

Function: Air-to-air missile.

First Flight: September 1953.

Delivered: 1957-present. AIM-9M deliveries began 1983; AIM-9X May 2002.

IOC: circa 1983 (9M); 2003 (9X).

Contractor: Raytheon, Loral.

Power Plant: Thiokol Hercules and Berrite 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-9M. Joint Navy-USAF weapon. All-altitude, all-aspect, launch-and-leave intercept capability. Improved defense against IR countermeasures, background discrimination, and reduced-smoke rocket motor. First flight in 1978.

■ AIM-9M-9. Expanded IR countermeasures detection capability.

■ 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. FY15 budget request funds Block II full rate production.

AIM-120 AMRAAM

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

Function: Air-to-air guided missile.

First Flight: December 1984.

Delivered: from 1988.

IOC: September 1991.

Contractor: Raytheon.

Power Plant: Alliant boost-sustain solid-propellant rocket motor.

Guidance: active radar terminal/inertial mid-course.

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. Operational testing suspended in 2012 for software and hardware issues; testing resumed in May 2013 with completion expected in FY14. FY15 budget would fund production and improvements, including fuzing and guidance.

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 that can be delivered as low-accuracy free-fall weapon or with near precision, given installation of a simple tail kit.

Extant Variant(s)

■ CBU-87. Unguided gravity weapon. CEM type. Dispenses BLU-97 shaped-charge anti-personnel/anti-materiel fragmentary/incendiary bomblets over the target in rectangular pattern.

■ 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.

Performance: dispenses 72 BLU-91 anti-armor and 22 BLU-92 anti-personnel mines.

COMMENTARY

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-89. Gravity weapon. Dispenses 72 anti-tank and 22 anti-personnel mines over target in a circular pattern. Able to fuze anti-tank mines for three different time delay settings. Magnetic influence fuze senses armor.

■ 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.

IOC: 1997.

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.

COMMENTARY

Tactical munitions dispenser with a payload of 10 BLU-108 submunitions, each containing four skeet projectiles, for a total of 40 lethal projectiles that seek out their target. The skeet'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.

First Flight: 2002.

IOC: December 2002.

Contractor: General Dynamics, kinetic energy penetrator payload and canister; Lockheed Martin, WCMD; Textron, tactical munition dispenser kit.

Guidance: via WCMD.



GBU-28 Paveway III (USAF)

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).

COMMENTARY

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 Iraqi Freedom.

GBU-10 Paveway II

Brief: An unpowered LGB used to destroy high-value enemy targets from short standoff distances.

Function: Air-to-surface guided munition.

First Flight: early 1970s.

IOC: 1976.

Contractor: Lockheed Martin, Raytheon.

Guidance: semiactive laser.

Warhead: Mk 84 bomb (2,000 lb unitary).

Dimensions: span 5.5 ft, length approx 14.8 ft, diameter 18 in.

Performance: CEP 29.7 ft, range 9.2 miles.

COMMENTARY

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-surface guided munition.

First Flight: early 1970s.

IOC: 1976.

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.

COMMENTARY

Improved versions of the earlier fixed wing Paveway 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.

First Flight: GBU-24 in service May 1985.

IOC: 1986.

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.

COMMENTARY

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-24. Air-to-ground weapon equipped with third generation Paveway III guidance kit, integrated with a BLU-109 penetrating warhead. Advanced guidance section and high-lift airframe.

GBU-28 Paveway III

Brief: A large 5,000-lb class air-to-ground penetrating warhead, equipped with an advanced laser guidance kit, used for striking and destroying hard and deeply buried targets.

Function: Air-to-surface guided glide bomb.

First Flight: February 1991.

IOC: 1991.

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.

COMMENTARY

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-28B/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-28C/B. Equipped with more powerful BLU-122 warhead for increased penetration, lethality. Guidance and control provided by Enhanced Paveway III system with GPS/INS and laser capability. Entered production in 2005.

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.

First Flight: Oct. 22, 1996.

IOC: 1998.

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



GBU-31 Joint Direct Attack Munition (SSgt. Michael B. Keller)

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.

COMMENTARY

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. FY15 budget would continue production at low rate.

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 II

Brief: Extended-range all-weather, day/night 250-lb class near-PGM. Provides increased loadout to achieve multiple kills per sortie and decreases collateral damage.

Function: Air-to-surface guided munition.

First Flight: May 23, 2003 (guided).

IOC: Oct. 2, 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

Capable of destroying high-priority fixed and stationary targets from fighters and bombers in internal bays or on external hardpoints. Can be targeted and released against single or multiple targets. Acquires target coordinates prior to release.

Extant Variant(s)

■ GBU-39B SDB I. First combat use Oct. 5, 2006, by F-15E operating over Iraq. Employs advanced anti-jam GPS/INS. Contract to develop/build SDB issued in 2003. Projected production: 24,000 weapons.

GBU-43 MOAB Bomb

Brief: A massive weapon designed for use against large area or buried targets.

Function: Massive guided bomb.

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 HE 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.

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: n/a (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-53/B SDB II. Under development. Raytheon won competition; contract issued August 2010. FY15 budget request would fund LRIP. Planned USAF production: 12,000 weapons.

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.

First Flight: 2005.

IOC: 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. FY15 budget would continue production at low rate.

GBU-57 Massive Ordnance Penetrator

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

Function: Massive PGM.

Guidance: GPS.

Warhead: 5,300-lb high explosive.

Dimensions: length 20.5 ft, diameter 31.5 in.

COMMENTARY

USAF partnered with the Defense Threat Reduction Agency in 2004 on early development and test. Flight tests conducted from 2008 to 2010. In February 2010, program transitioned to USAF. Boeing received contract in 2009 for aircraft integration.

Extant Variant(s)



GBU-43B MOAB Bomb (USAF photo)



AEHF (Lockheed Martin photo)

■ GBU-57B. Integration testing for B-2A bomber completed June 2011.

Satellite Systems

Advanced EHF Satellite System

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

Function: Communications.

Operator: AFSPC.

First Launch: August 2010.

IOC: 2015 (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)

■ AEHF SV-1. Launched in August 2010. An anomaly with its propulsion system delayed its arrival in operational orbit until October 2011. Completed on-orbit testing February 2012.

■ AEHF SV-2. Launched in May 2012. Now in orbit and operational.

■ AEHF SV-3. Launched in September 2013.

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).

First Launch: May 23, 1962.

IOC: 1965.

Constellation: two low Earth orbit (LEO).

Design Life: 48 months.

Launch Vehicle: Delta IV; Atlas V.

Operational Location: NOAA Satellite Operations

Facility, Suitland, Md.

Orbit Altitude: approx 527 miles.

Contractor: Lockheed Martin, Northrop Grumman.

Power Plant: solar arrays generating 1,200-1,300 watts.

Dimensions: length 25 ft (with array deployed), width 4 ft.

Weight: 2,545 lb, incl 772-lb sensor; 2,270 lb with 592-lb sensor payload.

Performance: polar orbits, cover Earth in about 6 hr, primary sensor scans 1,800-mile wide area.

COMMENTARY

Provides timely and high-quality weather information to strategic and tactical combat units worldwide. Uses operational linescan sensor to image cloud cover in visible and thermal IR and analyze cloud patterns. Equipped with microwave imagers and sounders and a suite of space environment sensors that provide critical land, sea, and space environment data.

Extant Variant(s)

■ Block 5D-3. Improved spacecraft bus and sensors for longer and more capable missions. Six operational DMSP satellites now survey the entire Earth four times a day. Last launched in 2009. Two spacecraft (DMSP-19 and DMSP-20) remain, with one slated for launch in spring 2014. USAF is considering requirements for a follow-on system.

Defense Satellite Communications System

Brief: Joint service satellite system that provides high-capacity communications for deployed air, land, and sea forces.

Function: Communications.

Operator: AFSPC.

First Launch: DSCS II 1971; DSCS III 1982; DSCS III/SLEP 2000.

IOC: Dec. 13, 1978 (DSCS II).

Constellation: five (III); 14 deployed/eight currently operational.

Design Life: 10 yr (III).

Launch Vehicle: Atlas II and EELV.

Operational Location: Schriever AFB, Colo.

Orbit Altitude: 22,000+ miles in geosynchronous orbit.

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.

COMMENTARY

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.

IOC: circa 1972.

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 22 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.

COMMENTARY

Key part of North American and theater early warning systems. Capable of detecting missile launches and nuclear detonations. Originally aimed at Soviet military. Used extensively in 1991 Gulf War to detect theater missile launches against coalition forces. The 23rd and final DSP satellite launched in December 2007.

Extant Variant(s)

■ Block 5. 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.

First Launch: Feb. 22, 1978.

IOC: Dec. 9, 1993.

Constellation: 27 spacecraft.

Design Life: 7.5 yr (II/IIA); 12 yr (IIF); 7.5 yr (IIR/IIR-M); 15 yr (IIIA).

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).

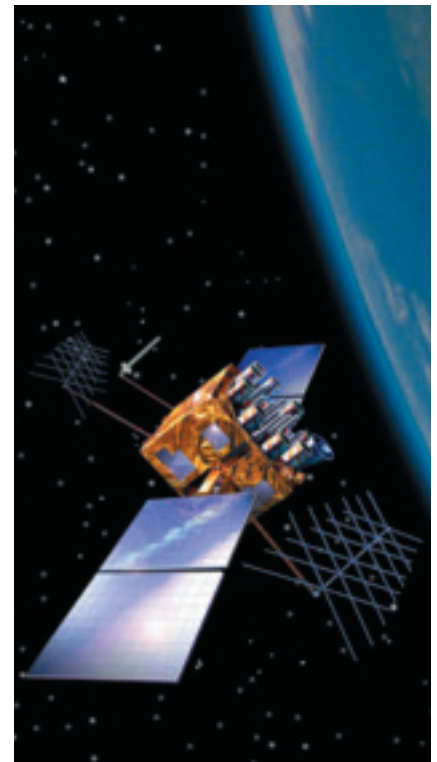
Dimensions: (IIR/IIR-M) 5 x 6.3 x 6.25 ft, span incl solar panels 38 ft; (IIF) 9.6 ft x 6.5 ft x 12.9 ft, span incl solar panels 43.1 ft.

Weight: on orbit, 2,370 lb (IIR/IIR-M); 3,439 lb (IIF).

Performance: orbit the Earth every 12 hr, emitting continuous signals, providing time to within one-millionth of a second, velocity within a fraction of a mile per hr, and location to within a few ft.

COMMENTARY

Fundamental contribution to precision bombing, CSAR, mapping, and rendezvous. Provides accurate three-dimensional (latitude, longitude, and



GPS (US government illustration)



Milstar (Lockheed Martin illustration)

curate three-dimensional (latitude, longitude, and altitude) position, velocity, and time data in an uninterrupted way.

Extant Variant(s)

■ **GPS Block IIA.** Launched first in 1997. Current constellation includes 11 IIAs launched to replace original GPS Block I series.

■ **GPS Block IIF.** Follow-on to IIR-M. Upgrades include extended design life, faster processors, and improved anti-jam and accuracy, with a new military signal and a second and third dedicated civil signal. The first launched in 2010, second in 2011, third in 2012, fourth in May 2013, and fifth on Feb. 20, 2014, leaving seven (one awaiting launch, five in storage, and one in temporary storage awaiting completion).

■ **GPS Block IIR-M.** First launched in 2005 and last in 2009. Upgrades included two new signals, enhanced encryption and anti-jamming capabilities, and second civil signal.

■ **GPS Block IIIA.** Future generation expected to provide improved accuracy, availability, integrity, and resistance to jamming. Lockheed Martin and Raytheon completed the first launch readiness exercise in September 2013. First launch slated for 2014.

Milstar Satellite Communications System

Brief: A joint service satcom 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: HEO 1, Dec. 5, 2008. (Increment 1, Dec. 8, 2001)

Constellation: four GEO sats, two HEO sensors (hosted).

Design Life: n/a.

Launch Vehicle: GEO, Atlas V.

Operational Location: Buckley AFB and Schriever AFB, Colo.

Orbit Altitude: Geosynchronous and high elliptical.

Contractor: Lockheed Martin, Northrop Grumman.

Power Plant: solar array, 2,435 watts (GEO).

Dimensions: GEO 7 x 6.3 x 19.7 ft.

Weight: 5,603 lb (GEO on orbit).

COMMENTARY

Follow-on to the Defense Support Program satellite. System includes GEO satellites, HEO hosted payloads, and ground assets. HEO sensor detects launch of submarine-launched ballistic missiles (SLBMs) from the North Polar region and can be tasked for other IR detection missions. GEO scanning IR sensor performs strategic missile warning mission, global technical intelligence, and initial phase for the strategic missile defense mission, providing two times the revisit rate and three times the sensitivity of DSP.

Extant Variant(s)

■ **SBIRS HEO.** HEO-1 and HEO-2 payloads went into operation in 2008 and 2009, respectively. USAF delivered HEO-3 to the host in June 2013, with delivery of HEO-4 expected in May 2015.

■ **SBIRS GEO.** USAF launched the GEO-1 satellite in 2011; officials say the quality of its data is exceeding performance expectations. GEO-2 launched in March 2013 and was accepted for operations. Delivery of GEO-3 slated for September 2015 and GEO-4 in September 2016.

Space Based Surveillance System

Brief: Space-based capability to provide metric and characterization data on objects in space.

Function: Space surveillance and object identification.

Operator: AFSPC.

First Launch: Sept. 25, 2010.

IOC: Aug. 17, 2012.

Constellation: one LEO satellite.

Design Life: seven years.

Launch Vehicle: Minotaur IV.

Operational Location: Schriever AFB, Colo.

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.

Weight: approx 2,273 lb.

COMMENTARY

Designed to track and collect optical signatures of Earth-orbiting objects, including space debris, from a space-based platform. First operational satellite (SBSS Block 10) launched in September 2010. In March 2011, USAF announced satellite control authority had transferred to 1st SOPS at Schriever, culminating the on-orbit initialization, checkout, calibration, and system characterization process. AFSPC is working to extend SBSS service life to cover a potential four-year gap in coverage before it can launch a follow-on

spacecraft in 2021—the earliest date based on projected funding.

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.

Constellation: eight satellites.

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. SV-1 was in service over the Pacific Ocean region in April 2008; SV-2 over the Middle East in August 2009; and SV-3 over Europe and Africa in June 2010.

■ **Block II.** Comprises satellites modified to better support the airborne ISR mission. SV-4 satellite launched in January 2012 and became operational in July 2012, covering the Indian Ocean area. USAF launched SV-5 and SV-6 (purchased by Australia) in May and August 2013, respectively. The US also has entered into partnership with Canada, Denmark, Luxembourg, Netherlands, and New Zealand. Block II follow-on sats, SV-7 to SV-10, are expected to launch over FY15 to FY18 and be operational by 2019.



WGS (Boeing illustration)