F/A-18D Hornet - 1994

United States



Type: Multirole (Fighter/Attack)
Min Speed: 350 kt
Max Speed: 920 kt
Commissioned: 1994
Length: 17.1 m
Wingspan: 11.4 m
Height: 4.88 m
Crew: 2
Empty Weight: 10810 kg
Max Weight: 23500 kg
Max Payload: 7030 kg
Propulsion: 2x F404-GE-402

Sensors / EW: - AN/APG-73 - Radar, Radar, FCR, Air-to-Air & Air-to-Surface, Medium-Range, Max range: 148.2 km
- AN/ALQ-126B - ECM, DECM, Defensive ECM, Max range: 0 km
- AN/ALR-67(V)2 - ESM, RWR, Radar Warning Receiver, Max range: 222.2 km

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Weapons / Loadouts:
- AIM-120A AMRAAM - (1992) Guided Weapon. Air Max: 50 km.
- 330 USG Drop Tank - Drop Tank.
- AIM-9M Sidewinder - (1984) Guided Weapon. Air Max: 18.5 km.
- AIM-7P Sparrow III - (1994) Guided Weapon. Air Max: 70.4 km.
- AGM-84D Harpoon IC - (1986) Guided Weapon. Surface Max: 138.9 km.
- AN/AWW-13 Datalink Pod - Sensor Pod.
- AGM-84E SLAM - (1990) Guided Weapon. Surface Max: 101.9 km. Land Max: 101.9 km.
- AGM-88C HARM - (1994) Guided Weapon. Surface Max: 129.6 km. Land Max: 129.6 km.
- AN/AAS-38B NITE Hawk Pod [FLIR + LRMTS + LST, 12k ft] - (1994, Air-to-Air Tracking) Sensor Pod.
- Mk82 500lb LDGP - (1954) Bomb. Surface Max: 1.9 km. Land Max: 1.9 km.
- AN/AAR-50 TINS Pod [FLIR] - Sensor Pod.
- Mk83 1000lb LDGP - (1954) Bomb. Surface Max: 1.9 km. Land Max: 1.9 km.
- Mk84 2000lb LDGP - (1955) Bomb. Surface Max: 1.9 km. Land Max: 1.9 km.
- GBU-12D/B Paveway II LGB [Mk82] - Guided Weapon. Surface Max: 7.4 km. Land Max: 7.4 km.
- GBU-16B/B Paveway II LGB [Mk83] - (USN) Guided Weapon. Surface Max: 7.4 km. Land Max: 7.4 km.
- GBU-10E/B Paveway II LGB [Mk84] - (USAF) Guided Weapon. Surface Max: 7.4 km. Land Max: 7.4 km.
- ADM-141A TALD [Active RF] - (1988) Decoy (Vehicle). Surface Max: 74.1 km. Land Max: 74.1 km.
- AGM-65E Maverick Laser - (1986) Guided Weapon. Surface Max: 14.8 km. Land Max: 14.8 km.
- GBU-10J/B Paveway II LGB [BLU-109/B] - Guided Weapon. Surface Max: 7.4 km. Land Max: 7.4 km.
- CBU-59/B APAM [717 x BLU-77/B Dual-Purpose Bomblets] - (Mk7 Dispenser) Bomb. Surface Max: 1.9 km. Land Max: 1.9 km.

- GBU-24B/B Paveway III LGB [BLU-109A/B] - (USN) Guided Weapon. Surface Max: 14.8 km. Land Max: 14.8 km.
- CBU-78/B GATOR [45 x BLU-91/B Bomblets + 15 x BLU-92/B Mines] - (Mk7 Dispenser) Bomb. Surface Max: 1.9 km. Land Max: 1.9 km.
- Mk20 Rockeye II CB [247 x Mk118 Dual Purpose Bomblets] - (1969, Mk7 Dispenser) Bomb. Surface Max: 1.9 km. Land Max: 1.9 km.
- Mine [Mk62 Quickstrike Mk82] - (1982) Bottom Mine.
- Mine [Mk63 Quickstrike Mk83] - (1982) Bottom Mine.
- Mine [Mk65 Mod 0 Quickstrike 2000lb] - (1984, 90m max depth) Bottom Mine.
- Mk77 Mod 1/2/3/4/5/6 500lb Incendiary Bomb - (USMC, 195x-2003) Bomb. Surface Max: 1.9 km. Land Max: 1.9 km.
- Mk82 500lb Snake Eye - (USN: 1967, USAF: 1970, Retarded) Bomb. Surface Max: 1.9 km. Land Max: 1.9 km.

OVERVIEW: The McDonnell Douglas (now Boeing) F/A-18 Hornet is a twin-engine supersonic, all-weather carrier-capable multirole combat jet, designed as both a fighter and attack aircraft (F/A designation for Fighter/Attack). Designed by McDonnell Douglas and Northrop, the F/A-18 was derived from the latter's YF-17 in the 1970s for use by the United States Navy and Marine Corps. The Hornet is also used by the air forces of several other nations. The U.S. Navy's Flight Demonstration Squadron, the Blue Angels, has used the Hornet since 1986.

The F/A-18 has a top speed of Mach 1.8 (1,190 mph or 1,915 km/h at 40,000 ft or 12,190 m). It can carry a wide variety of bombs and missiles, including air-to-air and air-to-ground, supplemented by the 20 mm M61 Vulcan cannon. It is powered by two General Electric F404 turbofan engines, which give the aircraft a high thrust-to-weight ratio. The F/A-18 has excellent aerodynamic characteristics, primarily attributed to its leading edge extensions (LEX). The fighter's primary missions are fighter escort, fleet air defense, Suppression of Enemy Air Defenses (SEAD), air interdiction, close air support and aerial reconnaissance. Its versatility and reliability have proven it to be a valuable carrier asset, though it has been criticized for its lack of range and payload compared to its earlier contemporaries, such as the Grumman F-14 Tomcat in the fighter and strike fighter role, and the Grumman A-6 Intruder and LTV A-7 Corsair II in the attack role.

The Hornet saw its first combat action in 1986 during Operation El Dorado Canyon and subsequently participated in 1991 Operation Desert Storm and 2003 Operation Iraqi Freedom. The F/A-18 Hornet provided the baseline design for the Boeing F/A-18E/F Super Hornet, a larger, evolutionary redesign of the F/A-18.

DETAILS: The F/A-18 is a twin engine, mid-wing, multi-mission tactical aircraft. It is highly maneuverable, owing to its good thrust to weight ratio, digital fly-by-wire control system, and leading edge extensions (LEX). The LEX allow the Hornet to remain controllable at high angles of attack. The wing is a trapezoidal shape with 20-degree sweepback on the leading edge and a straight trailing edge. The wing has full-span leading edge flaps and the trailing edge has single-slotted flaps and ailerons over the entire span.

Canted vertical stabilizers are another distinguishing design element, one among several other such elements that enable the Hornet's excellent high angle-of-attack ability include oversized horizontal stabilators, oversized trailing edge flaps that operate as flaperons, large full-length leading edge slats, and flight control computer programming that multiplies the movement of each control surface at low speeds and moves the vertical rudders inboard instead of simply left and right.

The Hornet was among the first aircraft to heavily use multi-function displays, which at the switch of a button allow a pilot to perform either fighter or attack roles or both. This "force multiplier" ability gives the operational commander more flexibility to employ tactical aircraft in a fast-changing battle scenario. It was the first Navy aircraft to incorporate

a digital multiplex avionics bus, enabling easy upgrades.

The Hornet is also notable for having been designed to reduce maintenance, and as a result has required far less downtime than its heavier counterparts, the F-14 Tomcat and the A-6 Intruder. Its mean time between failure is three times greater than any other Navy strike aircraft, and requires half the maintenance time. Its General Electric F404 engines were also innovative in that they were designed with operability, reliability and maintainability first. The engine, while unexceptional in rated performance, demonstrates exceptional robustness under various conditions and is resistant to stall and flameout. The F404 engine connects to the airframe at only 10 points and can be replaced without special equipment; a four person team can remove the engine within 20 minutes.

The engine air inlets of the Hornet, like that of the F-16, are of a simpler "fixed" design, while those of the F-4, F-14, and F-15 have variable geometry or variable ramp air inlets. This is a speed limiting factor in the Hornet design. Instead, the Hornet uses bleed air vents on the inboard surface of the engine air intake ducts to slow and reduce the amount of air reaching the engine. While not as effective as variable geometry, the bleed air technique functions well enough to achieve near Mach 2 speeds, which is within the designed mission requirements.

A 1989 USMC study found that single seat fighters were well suited to air to air combat missions while dual seat fighters were favored for complex strike missions against heavy air and ground defenses in adverse weather - the question being not so much as to whether a second pair of eyes would be useful, but as to having the second crewman sit in the same fighter or in a second fighter. Single-seat fighters that lacked wingmen were shown to be especially vulnerable.

SPECIFICATIONS: Crew: F/A-18C: (1), F/A-18D: (2) || Length: 56 ft (17.1 m) || Wingspan: 40 ft (12.3 m) || Height: 15 ft 4 in (4.7 m) || Max. takeoff weight: 51,900 lb (23,500 kg) || Powerplant: (2) General Electric F404-GE-402 turbofans || Dry thrust: 11,000 lbf (48.9 kN) each || AB Thrust: 17,750 lbf (79.2 kN) each || Fuel capacity: 10,860 pounds (4,930 kg) internally.

PERFORMANCE: Max Speed: Mach 1.8 (1,190 mph, 1,915 km/h) at 40,000 ft (12,190 m) || Combat radius: 400 nmi (460 mi (740 km)) || Service ceiling: 50,000 ft (15,240 m) || Rate of climb: 50,000 ft/min (254 m/s) || Thrust/weight: 0.96.

SENSORS: Hughes APG-73 radar || ROVER (Remotely Operated Video Enhanced Receiver) || SUU-42A/A Flares/Infrared decoys dispenser pod and chaff pod || Electronic countermeasures (ECM) pod || AN/AAS-38 Nite Hawk Targeting pods (US Navy only), to be replaced by AN/ASQ-228 ATFLIR || LITENING targeting pod.

ARMAMENT: (1) 20 mm (0.787 in) M61A1 Vulcan nose mounted 6-barreled Gatling cannon, 578 rounds || Hardpoints: 9 total - (2) wingtips missile launch rail, (4) under-wing, and (3) under-fuselage with a capacity of 13,700 pounds (6,200 kg) external fuel and ordnance || 2.75 inches (70 mm) Hydra 70 rockets || 5 in (127.0 mm) Zuni rockets || (4) AIM-9 Sidewinder or (4) AIM-132 ASRAAM or (4) IRIS-T or (4) AIM-120 AMRAAM and (2) AIM-7 Sparrow or (2) AIM-120 AMRAAM || AGM-65 Maverick || AGM-84H/K Standoff Land Attack Missile Expanded Range (SLAM-ER) || AGM-88 HARM Anti-radiation missile (ARM) || AGM-154 Joint Standoff Weapon (JSOW) || AGM-158 Joint Air-to-Surface Standoff Missile (JASSM) || Taurus missile || AGM-84 Harpoon || B61 nuclear bomb || JDAM precision-guided munition (PGMs) || Paveway series of laser-guided bombs || Mk 80 series of unguided iron bombs || CBU-78 Gator || CBU-87 Combined Effects Munition || CBU-97 Sensor Fuzed Weapon || Mk 20 Rockeye II.

SOURCE: [SCO] Wikipedia http://en.wikipedia.org