F-15A Eagle ASAT - 1985

United States



Type: Anti-Satellite Interceptor (ASAT)
Min Speed: 350 kt
Max Speed: 920 kt
Commissioned: 1985
Length: 19.3 m
Wingspan: 13.1 m
Height: 4.65 m
Crew: 1
Empty Weight: 12710 kg
Max Weight: 25400 kg
Max Payload: 7260 kg
Propulsion: 2x F100-PW-100

Sensors / EW: - AN/ALQ-128 EEWS - ESM, RWR, Radar Warning Receiver, Max range: 222.2 km
- AN/ALQ-135 TEWS Upgrade - ECM, DECM, Defensive ECM, Max range: 0 km
- AN/APG-63 - Radar, Radar, FCR, Air-to-Air, Medium-Range, Max range: 175.9 km
- AN/ALR-56A TEWS - ESM, RWR, Radar Warning Receiver, Max range: 222.2 km

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Weapons / Loadouts:
- ASM-135A ALMV - (1985-1985, ASAT) Guided Weapon. Air Max: 463 km.
- 600 USG Drop Tank - Drop Tank.

OVERVIEW: The McDonnell Douglas (now Boeing) F-15 Eagle is an American twin-engine, all-weather tactical fighter designed by McDonnell Douglas to gain and maintain air superiority in aerial combat. It is among the most successful modern fighters, with over 100 aerial combat victories. Following reviews of proposals, the United States Air Force selected McDonnell Douglas' design in 1967 to meet the service's need for a dedicated air superiority fighter. The Eagle first flew in July 1972, and entered service in 1976.

Since the 1970s, the Eagle has been exported to Israel, Japan, Saudi Arabia, and other nations. The F-15 was originally envisioned as a pure air superiority aircraft. Its design included a secondary ground-attack capability that was largely unused. The design proved flexible enough that an all-weather strike derivative, the F-15E Strike Eagle, was later developed, and entered service in 1989. The F-15 Eagle is expected to be in service with the U.S. Air Force past 2025. F-15 versions are still being produced for foreign users, with the F-15 production line set to end in 2019, 47 years after the type's first flight.

DETAILS: The F-15 has an all-metal semi-monocoque fuselage with a large cantilever shoulder-mounted wing. The empennage is metal and composite construction, with twin aluminum/composite honeycomb fins with boron-composite

skins, resulting in an exceptionally thin tailplane and rudders with all-moving composite horizontal tail surfaces outboard of the fins. The F-15 has a spine-mounted air brake and retractable tricycle landing gear. It is powered by two Pratt & Whitney F100 axial-flow turbofan engines with afterburners mounted side-by-side in the fuselage. The cockpit is mounted high in the forward fuselage with a one-piece windscreen and large canopy to increase visibility. The airframe began to incorporate advanced superplastically formed titanium components in the 1980s.

The F-15's maneuverability is derived from low wing loading (weight to wing area ratio) with a high thrust-to-weight ratio enabling the aircraft to turn tightly without losing airspeed. The F-15 can climb to 30,000 ft (10,000 m) in around 60 seconds. The thrust output of the dual engines is greater than the aircraft's weight, thus giving it the ability to accelerate in a vertical climb. The weapons and flight control systems are designed so that one person can safely and effectively perform air-to-air combat. The A and C-models are single-seat variants; these were the main air superiority versions produced. B and D-models add a second seat behind the pilot for training. E-models use the second seat for a weapon systems officer. Visibly, the F-15 has a unique feature vis-a-vis other modern fighter aircraft: it does not have the distinctive turkey feather aerodynamic exhaust petals covering its engine nozzles. This is because the petal design on the F-15 was problematic and could fall off in flight; therefore they were removed, resulting in a 3% drag increase.

A multi-mission avionics system includes a heads-up display (HUD), advanced radar, inertial guidance system (INS), flight instruments, ultra high frequency (UHF) communications, and Tactical Air Navigation (TACAN) and Instrument Landing System (ILS) receivers. It also has an internally mounted, tactical electronic-warfare system, identification, friend or foe (IFF) system, electronic countermeasures suite and a central digital computer.

The F-15's versatile APG-63 and 70 pulse-Doppler radar systems can look up at high-flying targets and down at low-flying targets without being confused by ground clutter. These radars can detect and track aircraft and small high-speed targets at distances beyond visual range down to close range, and at altitudes down to treetop level. The APG-63 has a basic range of 100 miles (87 nmi; 160 km). The radar feeds target information into the central computer for effective weapons delivery. For close-in dogfights, the radar automatically acquires enemy aircraft, and this information is projected on the heads-up display. The F-15's electronic warfare system provides both threat warning and automatic countermeasures against selected threats.

VARIANTS: The F-15E Strike Eagle is a two-seat, dual-role, totally integrated fighter for all-weather, air-to-air and deep interdiction missions. The rear cockpit is upgraded to include four multi-purpose CRT displays for aircraft systems and weapons management. The digital, triple-redundant Lear Siegler flight control system permits coupled automatic terrain following, enhanced by a ring-laser gyro inertial navigation system.[49] For low-altitude, high-speed penetration and precision attack on tactical targets at night or in adverse weather, the F-15E carries a high-resolution APG-70 radar and LANTIRN pods to provide thermal imagery.

SPECIFICATION: Crew: (1) or (2) || Length: 63 ft 9 in (19.43 m) || Wingspan: 42 ft 10 in (13.05 m) || Height: 18 ft 6 in (5.63 m) || Max. takeoff weight: 68,000 lb (30,845 kg) || Powerplant: (2) Pratt & Whitney F100-100 or -220 afterburning turbofans || Dry thrust: 14,590 lbf (64.9 kN) each || AB Thrust: 23,770 lbf for -220 (105.7 kN for -220) each.

PERFORMANCE: Max Speed: Mach 2.5+ (1,650+ mph, 2,665+ km/h) || Combat radius: 1,061 nmi (1,222 mi, 1,967 km) || Service ceiling: 65,000 ft (20,000 m) || Rate of climb: >50,000 ft/min (254 m/s) || Thrust/weight: 1.07 (-220) || G-load: 9 g.

SENSORS: AN/APG-63 || AN/APG-70 || AN/APG-63(V)1 || AN/APG-63(V)2 (AESA) || AN/APG-63(V)3 (AESA) || AN/ALQ-131 electronic countermeasures pod || AN/APX-76 (IFF) || AN/APX-119 (IFF) || AN/ALQ-128 Electronic Warfare Warning Set (EWWS) || AN/ALR-56 Radar warning receivers (RWR) || ALQ-135 Internal Countermeasures System (ICS) || AN/ALE-45 Chaff/Flares dispenser system.

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ARMAMENT: (1) 20 mm (0.787 in) M61A1 Vulcan 6-barreled Gatling cannon, 940 rounds || Hardpoints: Total (11) two under-wing (each with additional two missile launch rails), (4) under-fuselage and a single centerline pylon station, optional fuselage pylons (which may include conformal fuel tanks, known initially as Fuel And Sensor Tactical (FAST) pack for use on the C model) with a capacity of 16,000 lb (7,300 kg) || AIM-7 Sparrow || AIM-9 Sidewinder || AIM-120 AMRAAM || Mark 82 bombs || Mark 84 bombs || GBU-10 bombs || GBU-31 bombs.

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