# RF-4C Phantom II - 1965

## United States



Type: Recon
Min Speed: 350 kt
Max Speed: 920 kt
Commissioned: 1965
Length: 19.2 m
Wingspan: 11.7 m
Height: 5.02 m
Crew: 2
Empty Weight: 13245 kg
Max Weight: 28000 kg
Max Payload: 8480 kg
Propulsion: 2x J79-GE-15

Sensors / EW: - AN/APD-102 - Radar, SLAR, Side-Looking Airborne Radar, Max range: 74.1 km
- KS-87 Frame Camera - Visual, Visual, Reconnaissance Frame Camera, Max range: 9.3 km
- KA-91 Panoramic Camera - Visual, Visual, Reconnaissance Frame Camera, Max range: 9.3 km
- AN/AAD-5/RS-720 - Infrared, Infrared, Reconnaissance Frame Camera, Max range: 9.3 km
- AN/APQ-99 - Radar, Radar, Ground Mapping, Max range: 74.1 km
- AN/ALR-46(V) - (Digital Radar Warning Receiver, Phase VI ECM Fit) ESM, RWR, Radar Warning Receiver, Max range: 222.2 km

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Weapons / Loadouts:
- 370 USG Drop Tank - Drop Tank.
- AN/ALQ-119 DECM Pod - Sensor Pod.
- 600 USG Drop Tank - Drop Tank.

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OVERVIEW: The McDonnell Douglas F-4 Phantom II is a tandem two-seat, twin-engine, all-weather, long-range supersonic jet interceptor fighter/fighter-bomber originally developed for the United States Navy by McDonnell Aircraft. It first entered service in 1960 with the U.S. Navy. Proving highly adaptable, it was also adopted by the U.S. Marine Corps and the U.S. Air Force, and by the mid-1960s had become a major part of their respective air wings.

The Phantom is a large fighter with a top speed of over Mach 2.2. It can carry over 18,000 pounds (8,400 kg) of weapons on nine external hardpoints, including air-to-air missiles, air-to-ground missiles, and various bombs. The F-4, like other interceptors of its time, was designed without an internal cannon. Later models incorporated a M61 Vulcan rotary cannon. Beginning in 1959 it set 15 world records for in-flight performance, including an absolute speed record, and an absolute altitude record.

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DETAILS: During the Vietnam War the F-4 was used extensively; it served as the principal air superiority fighter for both the Navy and Air Force, and became important in the ground-attack and reconnaissance roles late in the war. The Phantom has the distinction of being the last U.S. fighter flown to attain ace status in the 20th century. During the Vietnam War the USAF had one pilot and two weapon systems officers (WSOs), and the US Navy one pilot and one radar intercept officer (RIO), achieve five aerial kills against other enemy fighter aircraft and become aces in air-to-air combat. The F-4 continued to form a major part of U.S. military air power throughout the 1970s and 1980s, being gradually replaced by more modern aircraft such as the F-15 Eagle and F-16 in the U.S. Air Force; the Grumman F-14 Tomcat in the U.S. Navy and the F/A-18 Hornet in the U.S. Navy and U.S. Marine Corps.

The F-4 Phantom II remained in use by the U.S. in the reconnaissance and Wild Weasel (suppression of enemy air defenses) roles in the 1991 Gulf War, finally leaving service in 1996. It was also the only aircraft used by both U.S. flight demonstration teams: the USAF Thunderbirds (F-4E) and the US Navy Blue Angels (F-4J). The F-4 was also operated by the armed forces of 11 other nations. Israeli Phantoms saw extensive combat in several Arab-Israeli conflicts, while Iran used its large fleet of Phantoms in the Iran-Iraq War. Phantoms remain in front line service with seven countries, and in use as an unmanned target in the U.S. Air Force. Phantom production ran from 1958 to 1981, with a total of 5,195 built, making it the most numerous American supersonic military aircraft.

In air combat, the Phantom's greatest advantage was its thrust, which permitted a skilled pilot to engage and disengage from the fight at will. The massive aircraft, designed to fire radar-guided missiles from beyond visual range, lacked the agility of its Soviet opponents and was subject to adverse yaw during hard maneuvering. Although thus subject to irrecoverable spins during aileron rolls, pilots reported the aircraft to be very communicative and easy to fly on the edge of its performance envelope. In 1972, the F-4E model was upgraded with leading edge slats on the wing, greatly improving high angle of attack maneuverability at the expense of top speed.

The J79 engines produced noticeable amounts of black smoke (at mid-throttle/cruise settings), a severe disadvantage in that the enemy could spot the aircraft. This was solved on the F-4S fitted with the -10A engine variant which used a smoke-free combustor.

The F-4's biggest weakness, as it was initially designed, was its lack of an internal cannon. For a brief period, doctrine held that turning combat would be impossible at supersonic speeds and little effort was made to teach pilots air combat maneuvering. In reality, engagements quickly became subsonic, as pilots would slow down in an effort to get behind their adversaries. Furthermore, the relatively new heat-seeking and radar-guided missiles at the time were frequently reported as unreliable and pilots had to use multiple shots (also known as ripple-firing), just to hit one enemy fighter. To compound the problem, rules of engagement in Vietnam precluded long-range missile attacks in most instances, as visual identification was normally required. Many pilots found themselves on the tail of an enemy aircraft but too close to fire short-range Falcons or Sidewinders. Although by 1965 USAF F-4Cs began carrying SUU-16 external gunpods containing a 20 mm (.79 in) M61A1 Vulcan Gatling cannon, USAF cockpits were not equipped with lead-computing gunsights until the introduction of the SUU-23, virtually assuring a miss in a maneuvering fight. Some marine corps aircraft carried two pods for strafing. In addition to the loss of performance due to drag, combat showed the externally mounted cannon to be inaccurate unless frequently boresighted, yet far more cost-effective than missiles. The lack of a cannon was finally addressed by adding an internally mounted 20 mm (.79 in) M61A1 Vulcan on the F-4E.

SPECIFICATION: Crew: (2) || Length: 63 ft 0 in (19.2 m) || Wingspan: 38 ft 4.5 in (11.7 m) || Height: 16 ft 6 in (5.0 m) || Max. takeoff weight: 61,795 lb (28,030 kg) || Powerplant: (2) General Electric J79-GE-17A axial compressor turbojets || Dry Thrust: 11,905 lbf (52.9 kN) each || AB Thrust: 17,845 lbf (79.4 kN) each.

PERFORMANCE: Max Speed: Mach 2.23 (1,472 mph, 2,370 km/h) || Combat radius: 367 nmi (422 mi, 680 km) || Service ceiling: 60,000 ft (18,300 m) || Rate of climb: 41,300 ft/min (210 m/s) || Thrust/weight: 0.86.

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SENSORS: AN/APQ-72 || APQ-72 radar || AN/AJB-3 bombing system || AN/AJB-7 bombing system || AWG-10 Fire Control System || AN/AVG-8 Visual Target Acquisition Set || AWG-10B radar.

ARMAMENT: (1) 20 mm (0.787 in) M61A1 Vulcan 6-barrel Gatling cannon, 640 rounds || Hardpoints: Up to 18,650 lb (8,480 kg) of weapons on nine external hardpoints, including general purpose bombs, cluster bombs, TV- and laser-guided bombs, rocket pods (UK Phantoms - Matra rocket pods with SNEB 68 mm rockets), air-to-ground missiles, anti-runway weapons, anti-ship missiles, targeting pods, reconnaissance pods, and nuclear weapons. Baggage pods and external fuel tanks may also be carried || AIM-7 Sparrow AA missles || AIM-9 Sidewinders AA missles || AIM-120 AMRAAM AA missles || Skyflash AA missiles || Python-3 || AGM-65 Maverick AG missles || AGM-62 Walleye || AGM-45 Shrike || AGM-88 HARM || AGM-78 Standard ARM || GBU-15 || Mk.82 || GBU-12 || Mk.84 || GBU-10 || GBU-14 || CBU-87 || CBU-89 || CBU-58 || Nuclear weapons, including the B28EX, B61, B43 and B57.

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