

## Douglas A-4 Skyhawk



A U.S. Navy A-4E Skyhawk of VA-164, from the USS *Oriskany*, in route to attack a target in North Vietnam during November 1967.

<b>Role</b>	Attack aircraft, fighter, aggressor aircraft
<b>National origin</b>	United States
<b>Manufacturer</b>	Douglas Aircraft Company McDonnell Douglas
<b>First flight</b>	22 June 1954
<b>Introduction</b>	October 1956
<b>Retired</b>	2003, U.S. Navy 1998, USMC 2015, Israeli Air Force
<b>Status</b>	In service with non-U.S. users
<b>Primary users</b>	United States Navy (historical) United States Marine Corps (historical)

	Israeli Air Force Argentine Air Force
<b>Produced</b>	1954–1979
<b>Number built</b>	2,960
<b>Unit cost</b>	US\$860,000 (average cost for first 500 units, 1950s)
<b>Variants</b>	Lockheed Martin A-4AR Fightinghawk McDonnell Douglas A-4G Skyhawk ST Aerospace A-4SU Super Skyhawk

The **Douglas A-4 Skyhawk** is a single seat carrier-capable attack aircraft developed for the United States Navy and United States Marine Corps. The delta winged, single-engine Skyhawk was designed and produced by Douglas Aircraft Company, and later by McDonnell Douglas. It was originally designated **A4D** under the U.S. Navy's pre-1962 designation system.

The Skyhawk is a lightweight aircraft with a maximum takeoff weight of 24,500 pounds (11,100 kg) and has a top speed of more than 600 miles per hour (970 km/h). The aircraft's five hardpoints support a variety of missiles, bombs and other munitions. It was capable of carrying a bombload equivalent to a B-17 and could deliver nuclear weapons using a low altitude bombing system and a "loft" delivery technique. The A-4 was originally powered by the Wright J65 turbojet engine; from the A-4E onwards, the Pratt & Whitney J52 was used.

Skyhawks played key roles in the Vietnam War, the Yom Kippur War, and the Falklands War. Sixty years after the aircraft's first flight, some of the nearly 3,000 produced remain in service with several air arms around the world,

including from the Brazilian Navy's aircraft carrier, *São Paulo*.

## Design and development



The XA4D-1 prototype in 1954

The Skyhawk was designed by Douglas Aircraft's Ed Heinemann in response to a U.S. Navy call for a jet-powered attack aircraft to replace the older Douglas AD Skyraider (later redesignated A-1 Skyraider). Heinemann opted for a design that would minimize its size, weight, and complexity. The result was an aircraft that weighed only half of the Navy's weight specification. It had a wing so compact that it did not need to be folded for carrier stowage. The diminutive Skyhawk soon received the nicknames "Scooter", "Kiddiecar", "Bantam Bomber", "Tinker Toy Bomber", and, on account of its nimble performance, "Heinemann's Hot-Rod".

The aircraft is of conventional post-World War II design, with a low-mounted delta wing, tricycle undercarriage, and a single turbojet engine in the rear fuselage, with two air intakes on the fuselage sides. The tail is of cruciform design, with the horizontal stabilizer mounted above the fuselage. Armament consisted of two 20 mm (.79 in caliber) Colt Mk 12 cannons, one in each wing root, with 100 rounds per gun (the A-4M Skyhawk II and types based on the A-4M have 200 rounds per gun), plus a large variety of bombs, rockets, and missiles carried on a hard

point under the fuselage centerline and hardpoints under each wing (originally one per wing, later two).



The second production A4D-1

The choice of a delta wing, for example, combined speed and maneuverability with a large fuel capacity and small overall size, thus not requiring folding wings, albeit at the expense of cruising efficiency. The leading edge slats were designed to drop automatically at the appropriate speed by gravity and air pressure, saving weight and space by omitting actuation motors and switches. Similarly the main undercarriage did not penetrate the main wing spar, designed so that when retracted only the wheel itself was inside the wing and the undercarriage struts were housed in a fairing below the wing. The wing structure itself could be lighter with the same overall strength and the absence of a wing folding mechanism further reduced weight. This is the opposite of what can often happen in aircraft design where a small weight increase in one area leads to a compounding increase in weight in other areas to compensate, leading to the need for more powerful, heavier engines and so on in a vicious circle.



A4D-2 (A-4B) refueling a F8U-1P (RF-8A)

The A-4 pioneered the concept of "buddy" air-to-air refueling. This allows the aircraft to supply others of the same type, eliminating the need for dedicated tanker aircraft—a particular advantage for small air arms or when operating in remote locations. This allows for greatly improved operational flexibility and reassurance against the loss or malfunction of tanker aircraft, though this procedure reduces the effective combat force on board the carrier. A designated supply A-4 would mount a center-mounted "buddy store", a large external fuel tank with a hose reel in the aft section and an extensible drogue refueling bucket. This aircraft was fueled up without armament and launched first. Attack aircraft would be armed to the maximum and given as much fuel as was allowable by maximum takeoff weight limits, far less than a full tank. Once airborne, they would then proceed to top off their fuel tanks from the tanker using the A-4's fixed refueling probe on the starboard side of the aircraft nose. They could then sortie with both full armament and fuel loads. While the capability of the A-4 was rarely used in U.S. service after the KA-3 Skywarrior became available as a tanker, the versatility of the capability and the retirement of the Skywarrior meant that the Boeing F/A-18E/F Super Hornet now includes this capability.



Thermal cockpit shield for nuclear weapons delivery

The A-4 was also designed to be able to make an emergency landing, in the event of a hydraulic failure, on the two drop tanks nearly always carried by these aircraft. Such landings resulted in only minor damage to the nose of the aircraft which could be repaired in less than an hour.

The Navy issued a contract for the type on 12 June 1952, and the first prototype first flew from Edwards Air Force Base, California on 22 June 1954. Deliveries to Navy and Marine Corps squadrons (to VA-72 and VMA-224 respectively) commenced in late 1956.

The Skyhawk remained in production until 1979, with 2,960 aircraft built, including 555 two-seat trainers. The last production A-4, an A-4M of Marine squadron VMA-331 had the flags of all nations that operated the A-4 painted on its fuselage sides.

## **Operational History**

The Skyhawk proved to be a relatively common United States Navy aircraft export of the postwar era. Due to its

small size, it could be operated from the older, smaller World War II-era aircraft carriers still used by many smaller navies during the 1960s. These older ships were often unable to accommodate newer Navy fighters such as the F-4 Phantom II and F-8 Crusader, which were faster and more capable than the A-4, but significantly larger and heavier than older naval fighters.

The Navy operated the A-4 in both Regular Navy and Naval Reserve light attack squadrons (VA). Although the A-4's use as a training and adversary aircraft would continue well into the 1990s, the Navy began removing the aircraft from its frontline attack squadrons in 1967, with the last ones (Super Foxes of VA-55/212/164) being retired in 1976.



A U.S. Navy TA-4J Skyhawk of TW-3 on the deck of USS *Lexington*, 1989

The Marine Corps would not take the U.S. Navy's replacement warplane, the LTV A-7 Corsair II, instead keeping Skyhawks in service with both Regular Marine Corps and Marine Corps Reserve attack squadrons (VMA), and ordering the new A-4M model. The last USMC Skyhawk was delivered in 1979, and they were used until the mid-1980s before they were replaced by the equally small, but more versatile STOVL AV-8 Harrier II.

VMA-131, Marine Aircraft Group 49 (the Diamondbacks) retired its last four OA-4Ms on 22 June 1994. Trainer versions of the Skyhawk remained in Navy service, however, finding a new lease on life with the advent of "adversary training", where the nimble A-4 was used as a stand-in for the Mikoyan-Gurevich MiG-17 in dissimilar air combat training (DACT). It served in that role at *TOPGUN* until 1999.



A-4F Skyhawk of the *Blue Angels* US Navy aerobatic team in 1975.

The A-4's nimble performance also made it suitable to replace the McDonnell Douglas F-4 Phantom II when the Navy downsized its aircraft for the Blue Angels demonstration team, until McDonnell Douglas F/A-18 Hornets were available in the 1980s. The last U.S. Navy Skyhawks, TA-4J models belonging to the composite squadron VC-8, remained in military use for target towing, and as adversary aircraft, for combat training at Naval Station Roosevelt Roads. These aircraft were officially retired on 3 May 2003.

Skyhawks were well loved by their crews for being tough and agile. These attributes, along with their low purchase and operating cost as well as easy maintenance, have contributed to the popularity of the A-4 with American and international armed forces. Besides the United States,



at least three other nations have used A-4 Skyhawks in combat (Argentina, Israel and Kuwait).

## Vietnam War Era



VA-146 A-4Cs over the Gulf of Tonkin in August 1964; USS *Kearsarge* steams below.

Skyhawks were the U.S. Navy's primary light attack aircraft used over North Vietnam during the early years of the Vietnam War; they were later supplanted by the A-7 Corsair II in the U.S. Navy light attack role. Skyhawks carried out some of the first air strikes by the US during the conflict, and a Marine Skyhawk is believed to have dropped the last American bombs on the country. Notable naval aviators who flew the Skyhawk included Lieutenant Commanders Everett Alvarez, Jr. and John McCain, and Commander James Stockdale. On 1 May 1967, an A-4C Skyhawk piloted by Lieutenant Commander Theodore R. Swartz of VA-76 aboard the carrier USS *Bon Homme Richard*, shot down a North Vietnamese Air Force MiG-17 with an unguided Zuni rocket as the Skyhawk's only air-to-air victory of the Vietnam War.

From 1956 on, Navy Skyhawks were the first aircraft to be deployed outside of the U.S. armed with the AIM-9 Sidewinder. On strike missions, which was the Skyhawk's normal role, the air-to-air armament was for self-defense purposes.

In the early to mid-1960s, standard U.S. Navy A-4B Skyhawk squadrons were assigned to provide daytime fighter protection for anti-submarine warfare aircraft operating from some *Essex*-class U.S. anti-submarine warfare carriers, these aircraft retained their ground- and sea-attack capabilities. The A-4B model did not have an air-to-air radar, and it required visual identification of targets and guidance from either ships in the fleet or an airborne Grumman E-1 Tracer AEW aircraft. Lightweight and safer to land on smaller decks, Skyhawks would later also play a similar role flying from Australian, Argentinean, and Brazilian upgraded World War II surplus light ASW carriers, which were also unable to operate most large modern fighters. Primary air-to-air armament consisted of the internal 20 mm (.79 in) Colt cannons and ability to carry an AIM-9 Sidewinder missile on both underwing hardpoints, later additions of two more underwing hardpoints on some aircraft made for a total capacity of four AAMs.

The first combat loss of an A-4 occurred on 5 August 1964, when Lieutenant Junior Grade Alvarez, of VA-144 aboard the USS *Constellation*, was shot down while attacking enemy torpedo boats in North Vietnam. Alvarez safely ejected after being hit by anti-aircraft artillery (AAA) fire, and became the first US Naval POW of the war; he was released as a POW on 12 February 1973. The last A-4 loss in the Vietnam War occurred on 26 September 1972, when USMC pilot Captain James P. Walsh, USMC of VMA-211, flying close air support from Bien Hoa Air Base, South Vietnam, was hit by ground fire during the Battle of An Lộc. Captain Walsh, ejected safely, landing within North Vietnamese Army becoming the last U.S. Marine to be taken prisoner during the war, and was released as a POW on 12 February 1973.

Although the first A-4Es were flown in Vietnam in early 1965, the A-4Cs continued to be used until late 1970. On 1 June 1965, the Chu Lai Short Airfield for Tactical Support (SATS) was officially opened with the arrival of eight A-4 Skyhawks from Cubi Point, Philippine Islands. The group landed with the aid of arresting cables, refueled and took off with the aid of JATO, with fuel and bombs to support Marine combat units. The Skyhawks were from Marine Attack Squadron VMA-225 and VMA-311.



Armed A-4Fs on the USS *Hancock* in 1972

On 29 July 1967, the aircraft carrier USS *Forrestal* was conducting combat operations in the Gulf of Tonkin during the Vietnam War. A Zuni rocket misfired, striking an external tank on an A-4. Fuel from the leaking tank caught fire, creating a massive conflagration that burned for hours, killing 134 sailors, and injuring 161.

During the war, 362 A-4/TA-4F Skyhawks were lost due to all causes. The U.S. Navy lost 271 A-4s, the U.S. Marine Corps lost 81 A-4s and 10 TA-4Fs. A total of 32 A-4s were lost to surface-to-air missiles (SAMs), and one A-4 was lost in aerial combat to a MiG-17 on 25 April 1967.

## Training and Adversary Role

The A-4 Skyhawk, in the two-seat TA-4J configuration, was introduced to a training role replacing the TF-9J Cougar. The TA-4J served as the advanced jet trainer in white and orange markings for decades until being replaced by the T-45 Goshawk. Additional TA-4Js were assigned to Instrument Training RAGs at all the Navy master jet bases under RCVW-12 and RCVW-4. The Instrument RAGs initially provided jet transition training for Naval Aviators during the time period when Naval Aviation still had a great number of propeller-driven aircraft and also provided annual instrument training and check rides for Naval Aviators. The assigned TA-4J models were installed with collapsible hoods so the aviator under training had to demonstrate instrument flying skills without any outside reference. These units were VF-126 at NAS Miramar, California; VA-127 (later VFA-127) at NAS Lemoore, California; VF-43 at NAS Oceana, Virginia; and VA-45 (later VF-45) at NAS Cecil Field, Florida until its later move to NAS Key West, Florida.



VFC-13 adversary A-4Fs at NAS Fallon in 1993

Additional single-seat A-4 Skyhawks were also assigned to composite squadrons (VC) worldwide to provide training and other services to deployed units. These

included VC-1 at NAS Barbers Point, Hawaii; VC-7 at NAS Miramar, California; VC-5 at NAS Cubi Point, Republic of the Philippines; VC-8 at NS Roosevelt Roads, Puerto Rico; VC-10 at NAVBASE Guantánamo Bay, Cuba, and Naval Reserve squadrons VC-12 (later VFC-12) at NAS Oceana, Virginia and VC-13 (later VFC-13) at NAS Miramar, California until its later move to NAS Fallon, Nevada.

With renewed emphasis on Air Combat Maneuvering (ACM) training brought on with the establishment of the Navy Fighter Weapons School (*TOPGUN*) in 1969, the availability of A-4 Skyhawks in both the Instrument RAGs and Composite Squadrons at the master jet bases presented a ready resource of the nimble Skyhawks that had become the TOPGUN preferred surrogate for the MiG-17. At the time, the F-4 Phantom was just beginning to be exploited to its full potential as a fighter and had not performed as well as expected against the smaller North Vietnamese MiG-17 and MiG-21 opponents. TOPGUN introduced the notion of dissimilar air combat training (DACT) using modified A-4E/Fs. Modified aircraft, called "Mongoose", lost the dorsal hump, the 20 mm cannon with their ammo systems, and the external stores, although sometimes the centerline station was kept. The slats were fixed.

The small size of the Skyhawk and superb low speed handling in the hands of a well-trained aviator made it ideal to teach fleet aviators the finer points of DACT. The squadrons eventually began to display vivid threat type paint schemes signifying their transition into the primary role of Adversary training. To better perform the Adversary role, single-seat A-4E and F models were introduced into the role, but the ultimate adversary Skyhawk was the Super Fox, which was equipped with the

uprated J52-P-408 engine. This variant had entered service in 1974 with VA-55/VA-164/VA-212 on the final USS *Hancock* cruise and had been the variant that the Blue Angels had selected in 1973.

The surplus of former USMC Skyhawks resulted in A-4M versions being used by both VF-126 and TOPGUN. Even though the A-4 was augmented by the F-5E, F-21, F-16, and F/A-18 in the adversary role, the A-4 remained a viable threat surrogate until it was retired by VF-43 in 1993 and shortly thereafter by VFC-12. The last A-4 fleet operators were VC-8, which retired its Skyhawks in 2003.

The A-4M was also operated by the Operations Maintenance Detachment (OMD) in an adversary role based at NAS Dallas, Texas for the Naval Air Reserve. Many of the aviators that flew the four jets were attached to NAS Dallas, including the Commanding Officer of the air station. The aircraft were instrumental in training and development of Air Combat Maneuvers (ACM) for Naval Air Reserve fighter squadrons VF-201 and VF-202 flying the F-4 Phantom II and later the Grumman F-14 Tomcat. The unit also completed several missions involving target towing to NAS Key West, Florida; NAS Kingsville, Texas, and deployments to NAS Miramar, California and NAS Fallon, Nevada for adversary support. The detachment was under the operational command of the Commander Fleet Logistics Support Wing (CFLSW), also based at NAS Dallas.



## MAPS A-4D – Bureau Number 139947



The airframe at the MAPS Air Museum is an A-4D version carrying the Bureau Number of 139947. It was built at the Douglas Aircraft Company, Long Beach, California and officially delivered to the United States Navy on 11 December 1956.

The initial assignment for this Skyhawk was Attack Squadron (VA) 93 then stationed at the Naval Air Station (NAS), Alameda, California. During this initial assignment, 139947 was deployed on 16 December 1957 aboard the U.S.S. Ticonderoga (CVA – 14) to the Western Pacific Area.

In February of 1959, the Skyhawk was transferred to VA-56 and based at NAS Miramar, California. During this assignment to NAS Miramar, it was also assigned to VA-112 (March 1959) and VA-126 (March 1960).

In August of 1961, 139947 was relocated from Miramar to NAS Lemoore (located in Kings County and Fresno County), California and assigned to VA-125.

July of 1962 saw the A-4D assigned to the Naval Air Reserve Training Command (NART) unit at NAS, Los Alamitos, California. Less than a year later (February 1963) it was placed in storage at NAS Litchfield Park, located near Phoenix, Arizona. Upon closure of the Litchfield Storage Facility in October 1965, 139947 was moved to the Military Aircraft Storage and Disposition Center (MASDC) at Davis-Monthan Air Force Base near Tucson, Arizona.

While the MASDC is the end of the line for many military aircraft, 139947 was destined for more. In March of 1966, the aircraft was recovered and moved back to its first duty assignment, NAS Alameda, California. In May it was sent to the Naval Air Rework Facility at Alameda and then assigned to NAS Twin Cities in Minneapolis-St. Paul, Minnesota. It was at this location it was converted to a TA-4A trainer. In September of 1968, the TA-4A was then transferred to NAS, Memphis and used as a ground trainer.

In June of 1987, 139947 was again reassigned, this time to the Nondestructive Inspection School then located at Chanute Air Force Base, in Rantoul, Illinois. A year later (June 1988) the school closed and the aircraft was placed on static display at the Chanute Aerospace Museum.

139947 was moved to MAPS in December of 2015 arriving here on December 13<sup>th</sup>. The aircraft is on loan from the United States Navy.

## **Variants:**

### **XA4D-1**

Prototype (pre 1962 designation)



## **YA4D-1**

(**YA-4A**, later **A-4A**): Flight test prototypes and pre-production aircraft. (Pre 1962 designation)

## **A4D-1**

See A-4A (pre 1962 designation)

## **A4D-2**

See A-4B (pre 1962 designation)



VA-81 A4D-2 on the USS *Forrestal* in 1962

## **A4D-2N**

See A-4C (pre 1962 designation)

## **A4D-3**

Proposed Advance avionics version, none built (pre-1962 designation)

## **A4D-4**

Long-range version with new wings, cancelled.

## **A4D-6**

Proposed version, none built (pre-1962 designation)

## **A-4A**

Initial production version, 166 built

## **A-4B**

Strengthened aircraft and added air-to-air refueling capabilities, improved navigation and flight control systems, provision for AGM-12 Bullpup missile, 542 built.



A-4B in the Intrepid Sea-Air-Space Museum

### **A-4C**

Night/adverse weather version of A4D-2, with AN/APG-53A radar, autopilot, LABS low-altitude bombing system. Wright J65-W-20 engine with 8,200 lbf (36 kN) of takeoff thrust, 638 built.



A-4C landing on the USS *Kitty Hawk* in 1966.

### **A-4D**

Designation not used to avoid confusion with the pre-1962 designation A4D.

### **A-4E**

Major upgrade, including new Pratt & Whitney J52-P-6A engine with 8,400 lbf (37 kN) of thrust, strengthened airframe with two more weapon pylons (for a total of five), improved avionics, with TACAN, Doppler navigation radar, radar altimeter, toss-bombing computer, and AJB-3A low-altitude bombing system. Many later

upgraded with J52-P-8 engine with 9,300 lbf (41 kN) thrust; 499 built.

### **A-4F**

Refinement of A-4E with extra avionics housed in a hump on the fuselage spine (this feature later retrofitted to A-4Es and some A-4Cs) and more powerful J52-P-8A engine with 9,300 lbf (41 kN) of thrust, later upgraded in service to J52-P-408 with 11,200 lbf (50 kN), 147 built. Some served with Blue Angels acrobatic team from 1973 to 1986.

### **A-4G**

Eight aircraft built new for the Royal Australian Navy with minor variations from the A-4F; in particular, they were not fitted with the avionics "hump". Subsequently, eight more A-4Fs were modified to this standard for the RAN. Significantly the A-4G were modified to carry four underwing Sidewinder AIM-9B missiles increasing their Fleet Defense capability.



A-4G of VF-805 takes a wire aboard HMAS *Melbourne* in 1980

### **A-4H**

90 aircraft for the Israeli Air Force based on the A-4F. Used 30 mm (1.18 in) DEFA cannon with 150 rpg in place of U.S. 20 mm (.79 in) guns. Later, some A-4Es later locally modified to this standard. Subsequently

modified with extended jet pipes as protection against heat-seeking missiles.

### **A-4K**

10 aircraft for Royal New Zealand Air Force. In the 1990s, these were upgraded under Project KAHU with new radar and avionics, provision for AGM-65 Maverick, AIM-9 Sidewinder, and GBU-16 Paveway II laser-guided bomb. The RNZAF also rebuilt an A-4C and 10 A-4Gs to A-4K standard.

### **A-4M Skyhawk II**

Dedicated Marine version with improved avionics and more powerful J52-P-408a engine with 11,200 lbf (50 kN) thrust, enlarged cockpit and IFF system. Later fitted with Hughes AN/ASB-19 Angle Rate Bombing System (ARBS) with TV laser spot tracker. 158 built.



A-4M of VMA-322

### **A-4N**

117 modified A-4Ms for the Israeli Air Force.

### **TA-4F**

Conversion trainer – standard A-4F with extra seat for an instructor, 241 built.

## **TA-4G**

Two trainer versions of the A-4G built new, and two more modified from TA-4Fs.

## **TA-4H**

25 trainer versions of the A-4H. Upgraded with more modern avionics.

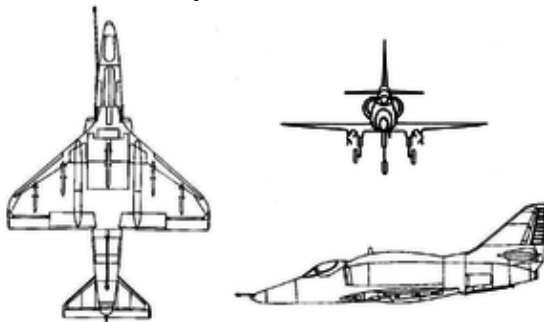
## **TA-4J**

Dedicated trainer version based on A-4F, but lacking weapons systems, and with down-rated engine, 277 built new, and most TA-4Fs were later converted to this configuration.

## **TA-4K**

Four trainer versions of the above. A fifth was later assembled in NZ from spare parts.

## **Specifications (A-4F Skyhawk)**



Douglas A-4E/F Skyhawk

## **General characteristics**

- **Crew:** one (two in OA-4F, TA-4F, TA-4J)
- **Length:** 40 ft. 3 in (12.22 m)
- **Wingspan:** 26 ft. 6 in (8.38 m)

- **Height:** 15 ft. (4.57 m)
- **Wing area:** 259 ft<sup>2</sup> (24.15 m<sup>2</sup>)
- **Airfoil:** NACA 0008-1.1-25 root, NACA 0005-0.825-50 tip
- **Empty weight:** 10,450 lb. (4,750 kg)
- **Loaded weight:** 18,300 lb. (8,318 kg)
- **Max. takeoff weight:** 24,500 lb. (11,136 kg)
- **Power plant:** 1 × Pratt & Whitney J52-P8 Turbojet, 9,300 lbf (41 kN)

### Performance

- **Maximum speed:** 585 kn (673 mph, 1,083 km/h)
- **Range:** 1,700 nmi (2,000 mi, 3,220 km)
- **Combat radius:** 625 nmi, 1,158 km ( )
- **Service ceiling:** 42,250 ft. (12,880 m)
- **Rate of climb:** 8,440 ft./min (43 m/s)
- **Wing loading:** 70.7 lb./ft<sup>2</sup> (344.4 kg/m<sup>2</sup>)
- **Thrust/weight:** 0.51
- **g-limit:** +8/-3 g

### Armament

- **Guns:** 2× 20 mm (0.79 in) Colt Mk 12 cannon, 100 rounds/gun
- **Hardpoints:** 4× under-wing & 1× under-fuselage pylon stations holding up to 9,900 lb. (4,490 kg) of payload
- **Rockets:**
  - 4× LAU-10 rocket pods (each with 4× 127 mm Mk 32 Zuni rockets)
- **Missiles:**
  - Air-to-air missiles:
    - 4× AIM-9 Sidewinder
  - Air-to-surface missiles:
    - 2× AGM-12 Bullpup
    - 2× AGM-45 Shrike anti-radiation missile
    - 2× AGM-62 Walleye TV-guided glide bomb
    - 2× AGM-65 Maverick
- **Bombs:**

- 6× Rockeye-II Mark 20 Cluster Bomb Unit (CBU)
- 6× Rockeye Mark 7/APAM-59 CBU
- Mark 80 series of unguided bombs(including 3 kg and 14 kg practice bombs)
- B43 nuclear bomb
- B57 nuclear bomb
- B61 nuclear bomb
- **Others:**
  - up to 3× 370 US gallons (1,400 L) *Sargent Fletcher* drop tanks (pylon stations 2, 3, 4 are wet plumbed) for ferry flight/extended range/loitering time

### **Avionics**

- Bendix AN/APN-141 Low altitude radar altimeter (refitted to C and E, standard in the F)
- Stewart-Warner AN/APQ-145 Mapping & Ranging radar (mounted on A-4F, also found on A-4E/N/S/SU)