

# US NAVY AIRCRAFT

## **Douglas A-4B Skyhawk**

In the early 1950s, the Navy sought a jet-powered replacement for the large, piston-engined AD-1 Skyraider. Noted aircraft designer Edward Henry “Ed” Heinemann led his team in creating the Skyhawk, an aircraft weighing half as much as the Skyraider. The A-4 Skyhawk features a modified delta wing with a span of only twenty-seven and one half feet that did not require folding for carrier hangar storage or transport to the flight deck. The A-4 met all Navy performance requirements and set a world speed record of 695 mph (1119 kph) in 1954, earning the craft the nickname “Heinemann’s Hot Rod.” The A-4 was flown by Senator John McCain off the USS Forrestal during the Vietnam War. He had previously flown Skyraiders off the Intrepid.



The A-4B Skyhawk displayed on the hangar deck is painted to resemble one that flew off the Intrepid during her first Vietnam tour. The in flight photograph of this aircraft was provided by Gerald Sagehorn, a pilot who flew this aircraft off Intrepid. The A-4B Skyhawk on loan from the National Museum of Naval Aviation in Pensacola, Florida.

## **Grumman/Eastern Aircraft TBM-3E Avenger**

3E Avenger First flown in 1941 and introduced operationally in June 1942, the Avenger became the U.S. Navy’s standard torpedo bomber throughout World War II, with more than 9,836 constructed. Designed and built by Grumman Aircraft Engineering Corporation, they were affectionately nicknamed “turkeys” for their somewhat ungainly appearance. Avengers flew off the Intrepid throughout her World War II career. In the Pacific theater, Avengers participated in the sinking of some of the most powerful warships in the Japanese fleet including the battleships Yamato and Musashi. Perhaps the most famous Avenger pilot was President George H. W. Bush who in 1944, despite aircraft damage and the loss of his crew, successfully piloted his Avenger in an attack on a Japanese radio station on Chichi Jima, an island south of Japan.



The Eastern TBM-3E Avenger displayed on the hangar deck was actually built in a General Motors plant in Trenton, New Jersey. The aerial photograph from the museum collection shows Avengers as flown off the Intrepid in 1944. This TBM-3E Avenger on exhibit is on loan from the National Museum of Naval Aviation in Pensacola, Florida



## Grumman E-1B Tracer

In 1954, the Navy began to develop a redesigned variation of the Grumman Tracker as a carrier-based early-warning aircraft. This resulted in the E-1B Tracer with its distinctive, large aerodynamic radome over the wing. The radome holds a massive dish-type radar system that has a search radius of some 250 miles (402 km). The Tracer entered service in 1958 and served aboard the Intrepid until the carrier's retirement in 1974. It remained in service with the fleet until 1976 when it was replaced by Grumman E-2 Hawkeyes.



Flying above a Carrier Task Force at 253 mph (407 kph) and heights up to 22,000 feet (4,815 meters), the Tracer and its crew of four would provide an electronic “bird’s eye view” of the surrounding airspace, extending the view of the task group hundreds of miles over the horizon.

This aircraft is on loan from the National Museum of Naval Aviation in Pensacola, Florida. It is being restored as one that flew from the Intrepid, and will be displayed on the flight deck. The photograph of a Tracer on the pier was taken in April 1971 by former Intrepid crew member Lee Heydolph before the aircraft was craned to the flight deck of Intrepid (left), with the USS Wasp shown to the right.

## Grumman F11F (F-11) Tiger

The design of the single-seat Tiger incorporated the Area Rule to reduce transonic and supersonic drag. Its Coke bottle-shaped fuselage was narrower at the wings and tail, a concept developed by Richard Whitcomb of the National Advisory Committee for Aeronautics (NACA), the predecessor of the National Aeronautics and Space Administration (NASA). The Tiger featured a thin wing, fuselage-side intakes, a low-mounted tailplane, and an afterburning engine. The latter enabled the F11F to fly at 753 mph (1,212 kph). Tigers could reach altitudes of 42,000 feet (12,800 meters).



The Tiger production line was short-lived, with only 201 planes built from 1957–1958. The first 42 Tigers were produced with a short nose, while later planes like the one displayed here had a long nose. Squadron VF-33 flew Tigers off the Intrepid from 1958 through 1960 as seen in the 1958 photo of one landing on Intrepid’s flight deck within the museum’s collection.



The Blue Angels, the U.S. Navy’s flight demonstration team, flew Tigers from 1957–68, shown in the above promotional photograph by the U.S. Navy. This plane on view served as Blue Angel 5 during the early 1960s and it has been restored as such, being displayed on the flight deck. It is on loan from the National Museum of Naval Aviation in Pensacola, Florida.

### **Grumman F-14 Tomcat**

Featured in the 1986 film *Top Gun*, the F-14 Tomcat was the Navy's first-line fighter from 1972–2006. In full forward-sweep position, its distinctive variable-geometry wings provide the lift needed for slow-speed flight essential for carrier landings. In swept-back position, the wings blend into the aircraft, giving the F-14 Tomcat a dart-like silhouette for supersonic flight at speeds up to 1,544 mph (2,485 kph) and heights more than 50,000 feet (16,000 meters). Powerful on-board targeting systems allow a Tomcat's two-seat crew of pilot and radar intercept officer to simultaneously fire up to six Phoenix missiles at six different targets at ranges exceeding 100 miles (161 km)! For close-in action, F-14's typically carry shorter-ranged Sidewinder and Sparrow missiles in addition to a 20mm M61 cannon.



This aircraft displayed on the flight deck, 157986, was the seventh Tomcat built by Grumman and was retained as their primary research and development airframe. In 1973, it served as the prototype for the "Super Tomcat" series, which incorporated more powerful engines. The photograph from the Grumman archives at the Cradle of Aviation Museum shows it in flight. The Tomcat is on loan from the National Museum of Naval Aviation in Pensacola, Florida.

### **Grumman A-6F Intruder**

The A-6A Intruder entered fleet service in 1963 as the world's first all-weather strike or attack aircraft. It could fly a fast 646 mph (1,040 kph). Intruders made substantial contributions to bombing raids in the Vietnam War (1964–75), as memorialized in the 1986 novel and 1991 film *Flight of the Intruder*. Pilot and bombardier-navigator sat side-by-side, a configuration similar to the 1950s Skyknight. The Intruder could deliver a load of some 18,000 pounds of ordinance—almost as much as the bomb load of a B-29 Superfortress, the largest of the World War II heavy bombers!



Grumman built 687 Intruder attack types. Intruders flew over 4,700 combat sorties in Operation Desert Storm (1991). As an attack aircraft, the A-6 was retired in 1997. Nevertheless, a variant of the A-6 still flies today: the EA-6B Prowler, an aircraft dedicated to electronic countermeasures.

The Intruder displayed on the flight deck is one of a handful of A-6Fs and was the 1988 testbed for new radar and avionics. It is on loan from the National Museum of Naval Aviation in Pensacola, Florida.

### **McDonnell F3H-2N (F-3B) Demon**

The F3H-2N Demon was designed and built by the McDonnell Aircraft Corporation (later McDonnell Douglas and now Boeing) of St. Louis, Missouri. Founded by pilot and engineer James Smith McDonnell after World War II (1939–45), the company produced the successful straight-winged Banshee jet fighter for the U.S. Navy during the Korean War (1950–53). The firm designed the Demon to be one of the next generation of Navy swept-wing fighters to counter Russian MiG-15s and 17s. The Demon, in turn, also acted as a major design link to McDonnell's phenomenal F-4 Phantom of the 1960s.

The single-seat Demon made its first flight on August 7, 1951. The aircraft's large wings, with power-operated slats that aided in providing lift at low speed, gave it smooth handling at high altitudes as well as good response during carrier landings. Designed as a cannon and missile-carrying fighter, the Demon could fly 647 mph (1041 kph) up to heights of 42,650 feet (12,999 m).

This aircraft is on loan from the National Museum of Naval Aviation in Pensacola, Florida and is displayed on the flight deck.



### **North American Aviation FJ-3 Fury**

North American Aviation, builder of the famed P-51 Mustang propeller-driven fighter aircraft, built the Navy's first jet aircraft, the XFJ-1 Fury. It conducted carrier trials on Intrepid's sister ship the USS Boxer in 1948. The Air Force ordered a modified swept-wing version of the Fury that became famous in the skies above Korea as the F-86 Sabre.



After the success of Sabres, the Navy ordered a carrier-based version of the F-86, the FJ-2, that incorporated an arrestor hook and reinforced landing gear for carrier landings, folding wings for easier storage, and four 20mm cannon. This new aircraft was superseded by the purpose-built FJ-3. By 1956–57, the FJ-3 was flown by twenty-one carrier-based fighter squadrons – including one assigned to the Intrepid. With the last Fury delivered in 1958, more than 11,000 Fury of all types had been built.

The FJ-3 Fury displayed on the hangar deck is painted in the colors of squadron VF-33, which flew from the Intrepid in 1958. FJ-3 Fury on loan from the National Museum of Naval Aviation in Pensacola, Florida.

### **Piasecki HUP/UH-25 Retriever**

Frank Piasecki, aeronautical engineer and one of America's helicopter pioneers, designed the Piasecki HUP/UH-25 Retriever specifically for the Navy in 1948. Unlike other Piaseckis, which could carry up to 40 passengers, his HUP/UH-25 was a small, six-passenger helicopter. Its rotors overlap and are small enough to fit on aircraft carrier elevators without having to fold or collapse the rotor blades. For storage on carrier hangar decks the blades could easily be folded, making this helicopter a very small, flexible workhorse. The HUP was used mostly as a utility helicopter and for aerial rescue; an electric onboard hoist and large floor hatch enabled a pilot to easily lift downed aviators.



The HUP displayed on the hangar deck is painted to resemble one that flew from Intrepid. It was painted with the support of the former crew members of the USS Intrepid Association. The photograph shows it as it was delivered from the restorer in 2008. It was purchased by the Intrepid Sea, Air & Space Museum in 2006.

### **Vought F-8K Crusader**

The Crusader was the first supersonic fighter designed for carrier use. Hinged at the trailing edge, its variable pitch wing could be hydraulically tilted seven degrees at the leading edge to increase the angle of attack, enabling the plane to land and take off at slower speeds.



On March 25, 1955, the Crusader became the first single-seat aircraft to break the sound barrier on its maiden flight. It was the fastest aircraft to fly from the Intrepid, able to reach top speeds of 1,322 mph (2,128 kph) and zoom to 52,350 feet (15,956 meters). Flown by Navy and Marine Corps squadrons, the Crusader saw extensive combat during the Vietnam War (1964–75).

On September 19, 1968, Intrepid pilot Anthony G. Nargi of squadron VF-111 fired a Sidewinder missile from his Crusader, shooting down a North Vietnamese

MiG-21. The Crusader displayed on the flight deck is painted to represent the airplane flown by Nargi from the Intrepid and is on loan from the National Museum of Naval Aviation in Pensacola, Florida.