



# AIR COMBAT COMMAND

## PEOPLE FIRST - MISSION ALWAYS

### U-2S/TU-2S

Current as of January 24, 2023



#### MISSION

The U-2 provides high-altitude, all-weather surveillance and reconnaissance, day or night, in direct support of U.S. and allied forces. It delivers critical imagery and signals intelligence to decision makers throughout all phases of conflict, including peacetime indications and warnings, low-intensity conflict, and large-scale hostilities.

#### FEATURES

The U-2S is a single-seat, single-engine, high-altitude reconnaissance and surveillance aircraft. Long and narrow wings give the U-2 glider-like characteristics and allow it to quickly lift heavy sensor payloads to unmatched altitudes, keeping them there for extended periods of time.

The U-2 is capable of gathering a variety of imagery products, including multi-spectral electro-optic, infrared, and synthetic aperture radar in addition to the high-resolution, broad-area synoptic coverage provided by a traditional “wet film” optical bar camera. The U-2 also has the capability to carry a signals intelligence payload. All intelligence products except for wet film can be transmitted in near real-time anywhere in the world via air-to-ground or air-to-satellite data links, rapidly providing critical information to combatant commanders.

Routinely flown at altitudes over 70,000 feet, the U-2 pilot must wear a full pressure suit similar to those worn by astronauts. The low-altitude handling characteristics of the aircraft and bicycle-type landing gear require precise control inputs during landing; forward visibility is also limited due to the extended aircraft nose and “taildragger” configuration. A second U-2 pilot normally “chases” each landing in a high-performance vehicle, assisting the pilot by providing radio inputs for altitude and runway alignment. These characteristics combine to earn the U-2 a widely accepted title as the most difficult aircraft in the world to fly.

The U-2 now has a General Electric F118-101 engine, fuel efficient and lightweight, which negates the need for air refueling on long duration missions. The U-2S Block 10 electrical system upgrade replaced legacy wiring with advanced fiber-optic technology and lowered the overall electronic noise signature to provide a quieter platform for the newest generation of sensors. The Block 20 upgrade provides a complete redesign of the cockpit with digital color multifunction displays and up-front avionics controls to replace the 1960s-vintage round dial gauges.

Future modifications include upgraded synthetic aperture radar; electronic warfare system, signals intelligence payload, and enhanced avionics.

#### BACKGROUND

Built in complete secrecy by Kelly Johnson and the Lockheed Skunk Works, the original U-2A first flew in August 1955. Early flights over the Soviet Union in the late 1950s provided President Eisenhower with key intelligence on Soviet military capability. In October 1962 the U-2 photographed the buildup of Soviet offensive nuclear missiles in Cuba, touching off the Cuban Missile Crisis.

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In more recent times, the U-2 has provided intelligence during operations in Korea, Europe, Afghanistan, and Iraq. When requested, the U-2 also provides peacetime reconnaissance in support of disaster relief from floods, earthquakes, and forest fires in addition to search and rescue.

The U-2R, first flown in 1967, was 40 percent larger and more capable than the original aircraft. A tactical reconnaissance version, the TR-1A, first flew in August 1981 and was structurally identical to the U-2R. The last U-2 and TR-1 aircraft were delivered in October 1989. In 1992 all TR-1s and U-2s were designated as U-2Rs.

Starting in 1994, the Air Force initiated a \$1.7 billion effort to modernize the U-2. This upgrade also resulted in the re-designation of all aircraft to the U-2S.

U-2s are home based at the 9th Reconnaissance Wing, Beale Air Force Base, California, but are rotated to operational detachments worldwide. U-2 pilots are trained at Beale using four two-seat aircraft designated as TU-2S before deploying for operational missions.



## Characteristics

**Primary Function:** High-altitude reconnaissance

**Contractor:** Lockheed Martin Aeronautics

**Power Plant:** One General Electric F-118-101 engine

**Thrust:** 17,000 pounds

**Length:** 63 feet (19.2 meters)

**Height:** 16 feet (4.8 meters)

**Wingspan:** 105 feet (32 meters)

**Speed:** 410+ miles per hour

**Maximum Takeoff Weight:** 40,000 pounds (18,000 kilograms)

**Range:** 7,000+ miles (6,090+ nautical miles)

**Ceiling:** Above 70,000 feet (21,212+ meters)

**Crew:** One (two in trainer models)

**Date Deployed:** U-2, August 1955; U-2R, 1967; U-2S, October 1994

**Cost:** Classified

**Inventory:** Approximately 30 (four TU-2s, 26 U-2s)

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