



WC-135R Constant Phoenix

Current as of March 20, 2023

MISSION

The WC-135R Constant Phoenix atmospheric collection aircraft supports national level consumers by collecting particulate and gaseous effluents and debris from accessible regions of the atmosphere in support of the Limited Nuclear Test Ban Treaty of 1963.

FEATURES

The aircraft is a modified KC-135R. The Constant Phoenix's modifications are primarily related to its on-board atmospheric collection suite, which allows the mission crew to detect radioactive "clouds" in real time. The aircraft is equipped with external flow-through devices to collect particulates on filter paper and an internal compressor system to collect whole air samples.

Three WC-135R aircraft are assigned to Offutt AFB, Nebraska. The 55th Wing provides the flight and aircraft maintenance crews, and the Air Force Technical Applications Center (AFTAC) provides airborne Special Equipment Operators (SEO) and mission system maintenance personnel.

BACKGROUND

Gen. Dwight D. Eisenhower commissioned the Constant Phoenix program on Sept. 16, 1947, when he charged the Army Air Forces with the overall responsibility for detecting atomic explosions anywhere in the world. In September 1949, a WB-29 flying between Alaska and Japan detected nuclear debris from Russia's first atomic test—an event thought not possible until mid-1950.

Beginning in August 1950, WB-50 aircraft were converted for the air-sampling mission over a two-year period. WC-135 aircraft began replacing the WB-50s in December 1965 and became the workhorse of the atmospheric collection program with 10 aircraft in operation until 1990. By the mid-1990s, the program dwindled to just one aircraft and was ultimately terminated, only to be resurrected a short time later when nuclear testing began again in the late 1990s. While rising from the ashes, it earned the nickname Constant Phoenix—adopted from the Phoenix of ancient Greek mythology who rose from the ashes to live again. Aircraft 61-2667 was refitted and returned to service and aircraft 62-3582 was converted from an EC-135C to continue the mission to the present. As a result of the FY19 NDAA, the Air Force will convert three KC-135R tankers to WC-135Rs, the first of which arrived in 2022.

Air sampling missions are routinely conducted over the Far East, Indian Ocean, Bay of Bengal, Mediterranean Sea, the Polar regions, and off the coasts of South America and Africa. Currently the air-sampling mission is tasked to support the Limited Nuclear Test Ban Treaty of 1963, which prohibits any nation from testing nuclear weapons above ground. The 45th Reconnaissance Squadron at Offutt AFB, Nebraska works closely with AFTAC and the Technical Operations Division to verify if any illegal testing of nuclear weapons has occurred.

General Characteristics

Contractor: L-3 Harris Technologies

Power Plant: Four CFM International CFM-56

Thrust: 21,634 pounds each engine

Length: 136 ft., 3 in.

Height: 41 ft., 8 in.

Wingspan: 130 ft., 10 in.

Speed: 530+ MPH

Ceiling: 50,000 ft.

Maximum Takeoff Weight: 322,500 pounds

Range: 4,000 nautical air miles (Unlimited with air refueling)

Number in Air Force Inventory: 3 WC-135R

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