

“Lucky Lady II”



On March 2, 1949 Lucky Lady II landed at Carswell Air Force Base (AFB), Texas. Captain James G. Gallagher and a 13-man crew took off from Carswell AFB, Texas, in a B-50 Superfortress named Lucky Lady II. Four days later the B-50 completed the first nonstop, around-the-world flight in history, covering 23,452 miles in 94 hours and 1 minute. This was achieved by refueling the plane in flight. The first refueling began over the Azores the morning after takeoff. It took two hours, during which time the bomber and the tanker remained linked and had to maintain a tight formation. It was tiring work. The flight started and ended at Carswell AFB with refueling accomplished over West Africa, the Pacific Ocean near Guam, and between Hawaii and the West Coast. This first nonstop circumnavigation proved that vast distances and geographical barriers were no longer an obstacle to military air power, thanks to aerial refueling. Bad weather, crew fatigue, and equipment problems complicated refueling in flight. Precise navigation (time, distance, and rate), expert fuel consumption calculations, and highly trained aviators made this feat a success.



“Operation Vittles” aids isolated Berlin



The Berlin Blockade (June 24, 1948 to May 11, 1949) became one of the first major crises of the new Cold War, during which the Soviet Union blocked railroad and street access to West Berlin. The crisis abated after the Soviet Union did not act to stop American, British and French humanitarian airlifts of food and other provisions to the Western-held sectors of Berlin; this was referred to as Operation Vittles by the Americans and Operation Plainfare by the British. At its height, The Berlin Airlift delivered a record 12,940 tons in a 24-hour period. The Berlin Airlift, gradually reduced since May 12, 1949, officially ended on September 30, 1949. 149 allied aircraft carried 2,343,301.5 tons of supplies on 277,264 flights, and U.S. planes carried 1,783,826 tons. This massive airlift involved thousands of calculations for cargo weight and cubic space requirements, planners had to carefully consider the lift capacity of each aircraft, the fuel consumption, as well as navigation, time and distance, and weather, to successfully conclude this famous operation. Clearly math helped make this airlift a success.



The SR-71 “Blackbird”



The Lockheed SR-71, unofficially known as the Blackbird, was an advanced, long-range, Mach 3 strategic reconnaissance aircraft. The aircraft holds a 15-mile course speed record of 2,193.167 MPH, set on July 27, 1976. The first flight of an SR-71 took place on December 22, 1964, and the first SR-71 to enter service was delivered in January 1966. The USAF had SR-71 Blackbirds in service from 1966–1998. The SR-71 was one of the first aircraft whose shape reduced radar signature. Constructed largely of titanium, it was coated with high-heat emissive black paint and had precious metals (e.g. gold) components. This combination helped retard the 1,100 F degree temperature from sustained supersonic flight. Designed as a strategic reconnaissance aircraft, its equipment included electronic intelligence collection and radar surveillance systems, plus photographic equipment capable of surveying 100,000 square miles of the earth’s surface in an hour. On September 1, 1975 the SR-71 set a world record by flying from New York to London in 1 hour, 54 minutes, and 56 seconds.



The F-22A Raptor



The F-22A Raptor is the Air Force’s newest fighter aircraft. Its combination of stealth, supercruise, maneuverability, integrated avionics and improved supportability represent an exponential leap in War fighting capabilities. The Raptor performs both air-to-air and air-to-ground missions allowing full realization of operational concepts vital to the 21st Century Air Force. Its unique characteristics include being able to sustain supersonic flight for periods of time without needing to engage afterburners; it is super-agile, stealthy, and has advanced integrated avionics - the heart of the avionics suite is a super computer that can process 10.3 billion bytes per second. The F-22 construction is 39% titanium, 24% composite, 16% aluminum, and 1% thermoplastic by weight. Titanium is used for its high strength-to-weight ratio in critical stress areas, including some of the bulkheads, and also for its heat-resistant qualities in the hot sections of the aircraft. Carbon fiber composites have been used for the fuselage frame, the doors, intermediate spars on the wings, and for the honeycomb sandwich construction of the skin panels.



The X-15 sets records on November 9, 1961



On a clear November morning in 1961 USAF Major Robert M. White attained a top speed of 4,093 mph in an X-15 hypersonic rocket plane while flying at full throttle at an altitude of 101,600 feet. The X-15 set numerous speed and altitude records in the early 1960s, reaching the edge of space and bringing back valuable data that was used in the design of later aircraft and spacecraft. Following this achievement of the X-15's, the emphasis of the program shifted from envelope expansion to flight research at high Mach numbers and altitudes. North American X-15 rocket plane was an experimental aircraft project. It was the first aircraft to attain velocities of Mach 4, 5, and 6. The X-15 was a rocket-powered research aircraft, launched from a B-52 aircraft, and completed 199 missions between 1959 and 1968. It had no landing gear, but landed on skis and had reaction controls for attitude control in space. Atmospheric pressure, altitude, slope of descent, and center of gravity all had to figure into the planning of each of these flights.

