

# US drone lands on carrier deck in historic flight

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An X-47B unmanned combat air system demonstrator conducts a landing on May 17, 2013 on a flight deck in the Atlantic Ocean. A US Navy drone successfully landed on the deck of an aircraft carrier on Wednesday, in an historic first for robotic flight, officials said.

A bat-winged drone touched down smoothly on the deck of a US aircraft carrier, marking a historic milestone for robotic flight.

The US Navy's X-47B floated down toward the carrier USS George

H.W. Bush at reduced speed and then caught an arresting wire on its tail hook, bringing it to a stop in a textbook landing, as reporters and top brass watched.

"You saw the future today," Navy Secretary Ray Mabus told journalists afterward.

The experimental plane had taken off about an hour earlier from the Patuxent River naval air station in Maryland before arriving at the carrier about 80 miles off the Virginia coast at about 1:40 pm local time (1740 GMT).

Naval pilots require years of training to learn how to land a fighter jet on a carrier floating at sea, one of the most daunting tasks in aviation.

But Wednesday's unprecedented landing by an unmanned plane showed that sophisticated computer software could perform the same task, guiding a robotic aircraft safely onto the deck of a ship at sea.

The touch down by the unmanned plane, dubbed "salty dog" by the Navy, represented a new era in naval flight, 102 years since a bi-plane made the first arrested landing on a ship.

Escorted by two F-18 fighter jets, the grey X-47B was perfectly aligned with the carrier deck as it made its descent, readjusting its position automatically with a GPS navigational system installed in the aircraft and on the carrier below.

In contrast to older model drones such as the Predator and Reaper, the X-47B can fly with more autonomy and does not require flight operators to exert constant step-by-step direction using a joystick.

In Wednesday's test, the plane calculated on its own when to put its

wheels down.

As the drone made its initial approach, there was a final precaution to test the aircraft. The landing officer on the carrier issued digital instructions to call off the landing, and the aircraft pulled up and gained altitude, circling above the ship.

As planned, the drone then came in for a second approach, gliding in gracefully and catching the arresting line in a flawless performance.

Rear Admiral Mat Winter, head of the Navy 's unmanned aviation program, called it an event for the "history books," but said the successful outcome came as no surprise after years of research and testing.

"What you saw today was a major visual demonstration, but we've been demonstrating and achieving technology maturation in the laboratory, in the models and the simulations," Winter said.

"We knew we were going to touch down x number of inches past the second wire, the hook was going to bounce x number of feet and that the hook was going to engage the third (wire)," he said.

The X-47B drone had already successfully taken off from a carrier in a catapult launch on May 14, and after its arrested landing on Wednesday, the plane took off from the deck, leaving behind a cloud of smoke as it shot upward.

The Navy envisages the tailless plane playing a central role in all air wings aboard carriers, which currently rely on manned fighter jets and helicopters.

The successful arrested landing clears the way for the Navy to press

ahead with the program and to invite bids from industry for production.

The drones, which are not due to be operational until 2019, will carry out surveillance as well as strike missions.

The X-47B, which is about 38 feet (12 meters) long with a wingspan of 62 feet, can reach subsonic speeds and fly at an altitude of more than 40,000 feet.

Unlike the Predator, which is slower and has a more limited range of 675 nautical miles (1,250 kilometers), the X-47B can fly 2,100 nautical miles before refueling, allowing it to potentially carry out long-range bombing raids.

The experimental prototype, which looks like a smaller version of the B-2 bomber, was developed by aerospace giant Northrop Grumman at a cost of about \$1.4 billion.

As the program moves to a new stage, the two X-47B prototypes will soon be moved to museums at the Patuxent River air station in Maryland and the Pensacola air base in Florida.

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