

# The Next AIR FORCE



**The current presidential transport has served well, but it is time for a replacement.**

*A photo illustration of a proposed Boeing 747-8 replacement for Air Force One.*

Staff illustration by Mike Tsukamoto. Original photos by Boeing and by USN Photographer's Mate 2nd Class Daniel J. McLain

**A**IR Force One, the blue and white “flying White House” that has carried Presidents around the world and served as a symbol of American power and technology since the current version debuted in 1990, is due for replacement. The Air Force is working to provide that new airplane by 2024—possibly in time for the President after the one elected in 2016 to fly in it.

The new airplane has already been chosen. It will be a Boeing 747-8—an updated version of the iconic 747 design—and the Air Force wants to buy

# ONE

By Will Skowronski, Senior Editor



three of them: two to carry the President and his entourage, and one as a spare. A longer version of the 747-200B that today's Air Force One is based on, the 747-8 will be familiar-looking but with an extension of the upper-deck "hump" that makes a 747 so distinctive.

Air Force One will carry state-of-the-art defensive and communications systems to protect the Commander in Chief and ensure the ability to stay in close contact with every element of government and the military—especially nuclear forces—and foreign heads of state.

The Air Force requested \$351 million in Fiscal 2017 for what it calls the Presidential Aircraft Recapitalization program, or PAR, and expects to spend about \$2.8 billion on the program through the next five years. The Fiscal 2017 budget request and the Pentagon's acquisition strategy call for two aircraft to be bought. Whether USAF will actually get to buy two or three aircraft is one of many decisions to be made this summer.

Boeing was picked in early 2015 to supply the airframe and serve as its systems integrator because there

was no other realistic choice. The Air Force determined the mission requires a widebody four-engine aircraft able to fit and power all the needed communications and security systems, and only two platforms met those requirements: the US-built Boeing 747-8 and French-made Airbus A380. For security and integration purposes (and national prestige), a domestic supplier was deemed essential, and Boeing was selected to do the work sole-source.

"The presidential aircraft is one of the most visible symbols of the United States of America," Secretary of the Air



White House photo by Cecil W. Stoughton

**Vice President Lyndon Johnson, flanked by first lady Jacqueline Kennedy (r) and his wife, Lady Bird Johnson (l), takes the presidential oath of office aboard Air Force One in November 1963 shortly after President John Kennedy's assassination in Dallas.**

Force Deborah Lee James said in announcing the selection, and “the Boeing 747-8 is the only aircraft manufactured in the United States [which], when fully missionized, meets the necessary capabilities established to execute the presidential support mission.”

### FASTEST IN THE WORLD

Even though Boeing will get the contract for the aircraft and integration, the massive effort to missionize the aircraft will be as competitive as possible, both to obtain good dollar value and to ensure the Air Force gets the best technical solution available.

According to Boeing, the 747-8, which first flew earlier this decade, is

the fastest commercial jet in the world, with a .855 Mach cruising speed. It can take off with 154,000 more pounds of cargo than the 747-200. With a nearly 225-foot wingspan and 250-foot length, the new 747 will have more room to accommodate the additional people and gear that now accompany the President when he travels.

The existing presidential transports—technically, any Air Force aircraft bearing the President carries the call sign Air Force One—are known by the nomenclature VC-25A and are powered by four General Electric CF6-80C2B1 engines, each generating 56,700 pounds of thrust. This allows the jet to maneuver far more aggressively than a commer-

cial 747, and to elude threats such as air-to-air or surface-to-air missiles. It’s not yet clear which engines will power the new 747-8s, but the commercial model comes with four General Electric GENx-2B engines. According to GE, that power plant has a takeoff thrust of 66,500 pounds each.

The existing presidential fleet is equipped with self-defense systems, including protection against electromagnetic pulse, and reportedly has state-of-the-art navigation, electronic, and communications equipment.

The Air Force bought the current aircraft in 1987. VC-25A tail No. 28000 first flew as Air Force One in September 1990, just after Saddam Hussein invaded Kuwait. At that time, the Internet was a novelty, and the first iPhone was still a decade away.

For amenities, the aircraft would rival any presidential suite. The three-level, 4,000-square-foot floor space on each aircraft can fit up to 102 people with 26 crew members. The President’s living area is equipped with a dressing room and shower, a medical suite that could be used for surgery, an executive office, a conference room that doubles as a dining room, and two galleys that can provide 100 meals at a time. Outfitted for aerial refueling, the aircraft can stay in the air indefinitely at need.

That capability was tested on 9/11, when President George W. Bush, visiting Florida, decided it was unwise to return

**Air Force One, carrying President Richard Nixon and first lady Pat, lands in China on Feb. 21, 1972.**



National Archives photo



## Dixie Clipper, Flying White House, and Sacred Cow

Franklin D. Roosevelt was the first sitting President to fly. A Boeing 314 Clipper flying boat, the *Dixie Clipper*, took him across the Atlantic to Gambia and a C-54 took him the rest of the way to the Casablanca conference during World War II. Soon after, the Army Air Forces commissioned the first aircraft to be built specifically for the US head of state.

That airplane, a Douglas VC-54C Skymaster, was officially named *The Flying White House*. However, it soon acquired the nickname "Sacred Cow" because of its unique status and accommodations: a conference room with a bulletproof window, a private lavatory, a fold-down bed, and electric refrigerator. The aircraft carried Roosevelt to the Yalta Conference in February 1945.

President Harry S. Truman flew in the Sacred Cow for the first 27 months of his Administration. On board the airplane, in July 1947, he signed the National Security Act of 1947, making the Air Force an independent service. That same month, a modified Douglas DC-6—designated the VC-118—was delivered and named *The Independence* after Truman's hometown.

Various propeller-driven aircraft continued to be used as the presidential transport until August 1959, when VC-137A, a Boeing Stratoliner, became the first presidential jet aircraft,

when it carried President Dwight D. Eisenhower. It was during his Administration that the practice began of calling the President's aircraft Air Force One.

The first jet aircraft built specifically for a president was the VC-137C, a highly modified Boeing 707-320B, first flown for President John F. Kennedy. With tail No. 62-6000 and call sign SAM 26000, it was also the first presidential airplane with the distinctive blue and white color scheme.

A new VC-137C, serial No. 72-7000 (SAM 27000), became the primary presidential jet in 1972, but in its lifetime SAM 26000 flew eight Presidents—Kennedy through Bill Clinton—in nearly 36 years of service. The transports gained notoriety as they became associated with historic events, such as when Lyndon B. Johnson was sworn into office aboard SAM 26000 after Kennedy's assassination, before returning from Dallas with Kennedy's body.

Sacred Cow and SAM 26000 are on display in the National Museum of the US Air Force's new hangar at Wright-Patterson AFB, Ohio. *The Independence* is scheduled to be as well. The Ronald Reagan Presidential Foundation and Library is home to SAM 27000.



to Washington given that the extent of the terrorist attacks on the US was still unknown. Air Force One had to serve as Bush's command center for determining the nature of the attack and directing the immediate response. The jet remained airborne for hours, eventually landing at Barksdale AFB, La., and Offut AFB, Neb., before returning the President to the nation's capital.

Though the current presidential transports have been updated routinely through their lives, parts are becoming hard to get, as commercial operators have almost entirely retired their versions of the 747-200. Moreover, the

aircraft, which have logged millions of miles of travel, are structurally feeling their age. Designed to serve for 30 years, the aircraft will be at least four years past their intended retirement date when they are finally withdrawn from service—assuming there are no further delays in the program.

### CLEARLY A NEED

In announcing the selection of Boeing as supplier of the aircraft and the integrator of its systems, James said, "Parts obsolescence, diminishing manufacturing sources, and increased down times for maintenance" will challenge the Air

**Top: The first aircraft built for a US President, "Sacred Cow," at the National Museum of the US Air Force in Dayton, Ohio. Above: President Truman flew in The Independence from 1947 to 1953.**

Force's ability to provide the President with safe and reliable transportation "until a new aircraft is fielded."

In January 2009, the Air Force announced it was researching replacements after a study found that building a new fleet would cost less than updating the old one. Former Defense Secretary Robert M. Gates told lawmakers in March 2010, "There clearly is a need for a new presidential aircraft."



White House photo by Pete Souza

**President Barack Obama (l) meets with staff in 2009 aboard Air Force One en route to Ankara, Turkey.**

In a budget document, the Air Force said the VC-25A fleet also faces “capability gaps,” but did not provide specifics.

While USAF has been tight-lipped about what improvements the PAR will feature, some of the reported modifications to the 747-8 include installing an electrical power upgrade with dual auxiliary power units, a mission communications system, military avionics, autonomous enplaning, deplaning, baggage loading capabilities, and a modern self-defense system.

Boeing did not immediately receive a contract for the PAR project. At the time, Col. Amy McCain, the PAR program manager, said a contract would only be awarded if negotiations found a fair price.

Cost problems caused a similar project to fail spectacularly. Between

2005 and 2008, the estimated cost of developing a fleet of new VH-71 presidential support helicopters (the so-called “Marine One” aircraft) doubled, from \$6.5 billion to \$13 billion. Power requirements, exquisite onboard communications needs, and other requirements expansion led President Obama to call the program “an example of the procurement process gone amuck.”

The Navy terminated the project in 2009 after an investment of 10 years and \$3.3 billion.

### **AVOIDING THE NAVY’S WOES**

To avoid the same result, USAF is starting small. Congress allotted \$82.4 million for the PAR program in Fiscal 2016, and in January, the service awarded Boeing \$25.8 million to begin work. Under the cost-plus-fixed-fee

contract, Boeing is studying how to keep costs down with design trade-offs and risk reduction going into the engineering and manufacturing development phase. A second risk-reduction contract is expected this summer, according to a USAF spokeswoman.

“We are focused on ensuring this program is affordable,” McCain said in a statement announcing the deal. “This contract gets us started on determining how to modify a 747-8 to become the next Air Force One and finding opportunities for cost reduction through detailed requirements choices, competition of subsystems, and in the sustainment of the aircraft after it has been fielded.”

In February, the PAR program released a request for proposal for the basic airframe. An RFP for preliminary design activities was posted in May.

The program goes before the Defense Acquisition Board this summer for its Milestone B review. That review determines if the appropriate risk reduction has taken place and if technology is ready to proceed to engineering and manufacturing development. If development is approved, the program will buy the aircraft, and design work will begin shortly thereafter, in early Fiscal 2017.

A preliminary design review is scheduled for mid-2018, and the design phase is projected to end with a critical design review in the fourth quarter of Fiscal 2019.

The Air Force expects the aircraft to reach initial operational capability in 2024 and have a 30-year lifespan.✪

**Air Force One at Maxwell AFB, Ala., in 2015. The replacement presidential aircraft is slated to come on line in 2024 and fly for 30 years.**



USAF photo by Donna L. Burnett