

Colossal aircraft with a mission

The world's largest plane, the Stratolaunch, is built to launch rockets into space. It is the largest aircraft by wingspan and the largest all-composite plane ever built. Taking an airport-style approach for rocket launches, this plane developed by Microsoft co-founder Paul Allen's company Stratolaunch Systems could make space access more convenient, reliable and routine. The plane is capable of delivering payloads to multiple orbits and inclinations in a single mission.

WINGSPAN
Stratolaunch's 117m wingspan is longer than an American football field

ENGINES
Six 747 engines provide a reliable and reusable platform capable of frequent flights and airport-style operations

RIGHT FUSELAGE
The right fuselage houses a three-person flight crew consisting of:
• Pilot
• Co-pilot
• Flight engineer

CENTRE WING
Reinforced centre wing provides lift, stability, and an attachment point for multiple payloads

STRATOLAUNCH SPECIFICATIONS

WINGSPAN 117m
LENGTH 73m
TAIL HEIGHT 15m
PROPULSION 6 x Pratt & Whitney PW4056 engines
MAX TAKE-OFF WEIGHT 590,000kg

EMPTY PLANE 227,000kg
FUEL 113,000kg
ROCKET & PAYLOAD 250,000kg

UNUSUAL FUSELAGE
• Most jet airliners have round fuselages as corners could become points of excess pressure.
• Since the Stratolaunch is largely empty and unpressurised, it was built with a simpler boxy body. However, the front of each fuselage is still round as it is pressurised.



Round pressurised fuselage transports passengers

Approximate size of a human relative to the Stratolaunch

In 2011, the project's cost was initially estimated to be at **US\$300million** but there are no updated figures

LEFT FUSELAGE
Contains flight data system

MULTI-STAGE BOOSTER
• A rocket will be released from the Stratolaunch at high altitude and it will fire, carrying the payload into low earth orbit.
• The Stratolaunch is designed to carry up to three of these.

• Under a partnership, Orbital ATK will provide multiple Pegasus XL air launch vehicles for use with the Stratolaunch.

HOW THE STRATOLAUNCH WORKS

• Rocket launch occurs slightly below the altitude of commercial aircraft at 30,000ft.
• At this altitude more than half of the density of the atmosphere would be below the rocket and much less fuel is needed for the rocket to travel to low earth orbit.

• The Stratolaunch also has the ability to position itself so satellites can be directly delivered into very precise orbits quickly, reducing costly and time-consuming delays experienced on vertical rocket launches.

• Operational range of 2,000 nautical miles

• Requires a runway at least 3,658m long

• Launch occurs at altitude of 30,000ft

• Rocket free falls and fires its own engines, hauling the satellite payload into low earth orbit (200km above Earth's surface)

• After releasing the rocket, the Stratolaunch flies back to its base for a conventional airport-style landing

CONSTRUCTION OF THE STRATOLAUNCH

• The Stratolaunch is largely built using existing technologies. Two used jumbo jets (Boeing 747-400) formerly flown by United Airlines were bought and disassembled to be installed on the Stratolaunch aircraft.



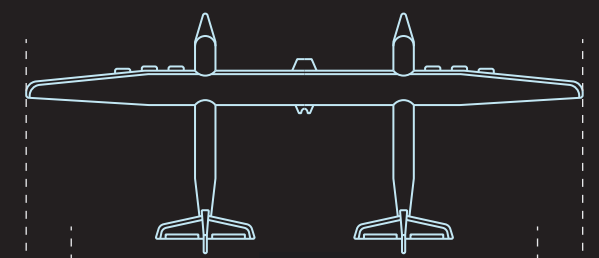
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BOEING 747-400

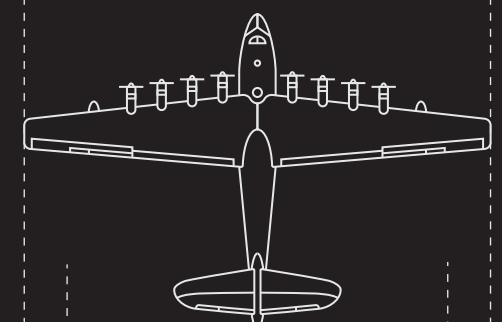
• Various key pieces and systems of the Stratolaunch, including avionics, hydraulics, fuel subsystems, as well as the six sets of main landing gear, each with four wheels, and two sets of nose landing gear, each with two wheels, were from the 747.

• The shell of the cockpit and the rest of the plane's body are hand-built by Scaled Composites from carbon fibre composite - thin strong crystalline filaments of carbon that can be woven to form cloth and coated in resin to take a permanent form. Carbon fibre is five times stronger than steel, twice as stiff and much more lightweight.

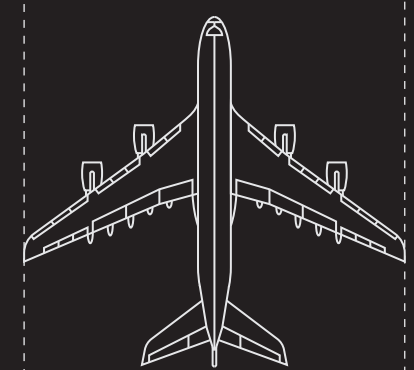
WINGSPANS OF LARGE AIRCRAFT



117m
STRATOLAUNCH



98m
HUGHES H-4 HERCULES



80m
AIRBUS A380



The images below show the Stratolaunch aircraft under construction at the Mojave Air & Space Port in Mojave, California.

In May 2017, mechanics removed the last of the three-storey scaffolding surrounding the Stratolaunch leaving the aircraft's full weight to rest on its 28 wheels for the first time.

