Endeavour assembly at Science Center starts with lifting 52-ton rockets into place

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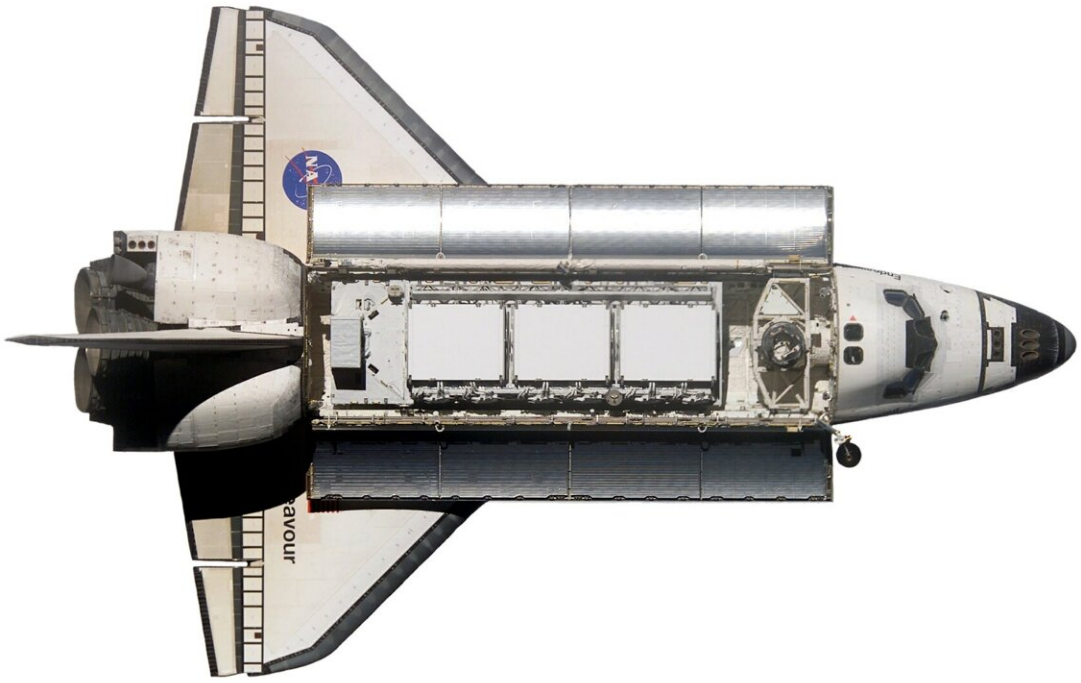

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The space shuttle Endeavour's twin giant rockets will be hoisted by crane next week and affixed into place atop the craft's aft skirts in a first step of assembling a full-stack configuration of the shuttle at the future

Samuel Oschin Air and Space Center.

The two solid rocket motors—each weighing 104,000 pounds and the size of a Boeing 757 fuselage—were transported by truck in early October from Mojave Air and Space Port to the science center in South Los Angeles.

"It's actually pretty exciting. This is the first big tall pieces of the stack going into the building," California Science Center President Jeffrey Rudolph said. Each solid rocket motor measures 116 feet and makes up most of the length of the 149-foot solid rocket boosters. At liftoff, the white solid rocket boosters were set underneath Endeavour's wings and produced more than 80% of the lift during takeoff.

On Monday, the motors will be moved from their current location—next to the museum's dining terraces—a few hundred feet closer to the construction site.

The first significant action begins Tuesday, when the science center will lift the first solid rocket motor into place. The museum expects to livestream the installation.

The second motor will be installed no earlier than Nov. 8.

The placement will be completed using two cranes—a small one that will lift the rockets from a horizontal position to a vertical one, and a large one that will hoist them into place. Each rocket will be installed atop the solid rocket booster's base—the aft skirts, which are 9 feet tall and were moved into place in July.

Tuesday's work should begin around 8 a.m., and it probably will take an hour to lift the rocket into place.

"But then what will take more time—hopefully not too much more time, but potentially a lot more time—is putting the approximately 180 pins in that attach the solid rocket motor to the aft skirt," Rudolph said. The installation of the pins could take a few hours or last into the night. Each pin is 1 inch in diameter and about 2 inches long.

"If everything, as they lower it in and put it in, aligns really well, the pins basically slide right in. If it doesn't, then every pin takes some banging and pounding to get the pin in," Rudolph said.

Once the solid rocket motors are installed, the final piece to complete the solid rocket boosters are the tips—the so-called forward assembly, including the nose cones and forward skirts. The museum must assemble scaffolding for that installation to take place.

The full assembly of the boosters will set the stage for installation of the orange external tank, which will occur no earlier than early January.

Finally, the installation of the Endeavour orbiter will occur no earlier than the last week of January. Cranes—the tallest of which will be about the height of City Hall—will raise Endeavour from its horizontal position to point vertically to the stars for its final display. The rest of the museum will then be built around it.

Once it's complete, the $400-million Samuel Oschin Air and Space Center will rise 20 stories tall. It'll be the only space shuttle exhibit nationwide to depict the spacecraft as if it were at the launchpad, ready for takeoff.

The new museum wing has been anticipated since 2011 when NASA chose the science center as one of only three museums in the U.S. to permanently feature a trio of surviving shuttles that have seen spaceflight.

Since Endeavour's arrival in 2012, the orbiter has been on display in the temporary Samuel Oschin Pavilion, essentially a warehouse, where it has been viewed over the last decade, and where it will be shown until Dec. 31. After that date, it could be years before Endeavour will again be available for up-close viewing by museum guests.