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WHAT CAME FIRST—HOW APOLLO-ERA INFRASTRUCTURE CONTINUES TO PAVE THE WAY FORWARD FOR NASA'S NEXT BIG ROCKET

Abstract

Fifty years after the Apollo 11 crew became the first humans to walk on the Moon, the Saturn V rocket is still remembered as one of NASA's crowning achievements and one of the greatest engineering marvels of the modern age. Often lost in its shadow, however, are the many other marvels that enabled its success—namely, the incredible amount of infrastructure created to support the development, construction, and launch of the mighty Moon rocket. Much of this infrastructure still stands today, not merely as relics of the Space Race, but as vital tools in a new era of commercial partnerships and ambitious exploration. At Michoud Assembly Facility, located just outside of New Orleans, Louisiana, commercial tenants use tooling on which Saturn V hardware was manufactured. At Marshall Space Flight Center in Huntsville, Alabama, Blue Origin is planning to conduct engine development test firings on a looming stand in which the Saturn V first stage once roared loudly enough to be heard almost a hundred miles away. And at Kennedy Space Center in Florida, the same Vehicle Assembly Building used for stacking the Saturn V stages has been reconfigured to assemble the rocket that will power humanity's next voyages to the Moon—NASA's Space Launch System. The enduring contributions of this infrastructure may be credited to the philosophy with which it was designed. From test stands at Marshall to bridges in south Mississippi, then-Marshall Center Director Wernher von Braun directed that infrastructure be designed not based on the specifications of the Saturn V itself, but with margin added to support a larger launch vehicle in the future. This presentation will discuss the infrastructure marvels that made it possible to develop, build, and fly the Saturn V; the contributions that infrastructure continues to make for NASA and its industry partners; and how NASA today is utilizing von Braun's design philosophy as it, at last, builds that larger rocket: the Space Launch System.