

55 YEARS SINCE THE BIRTH OF A HISTORIC ROCKET: SATURN V

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ABSTRACT

This paper is about how the Saturn V rocket was built 55 years ago, the rocket that first landed humans on a body outside our planet Earth. In the paper are presented characteristics such as: height, weight, as well as the history of the Apollo crews who did different tests on the biggest step of those times: "the first step towards the conquest of the closest body to the Earth, the natural satellite, the Moon" as Buzz Aldrin, the only astronaut of the three who is still alive, states in an interview.

Key words: 55 years, birth, rocket, Saturn

Saturn V was a rocket built by NASA with the primary purpose of sending people to the Moon. (The V in the name is the Roman numeral five.) The Saturn V was a type of rocket called a Heavy Lift Vehicle, and that means it was very powerful. It was in fact the most powerful rocket that ever flew with successfully accomplishing the purpose for which it was built.

The Saturn V was used in the Apollo program in the 1960s and 1970s. It was also used to launch the Skylab space station. The Saturn V rocket was 111 meters tall, about the height of a 36-story building and 18 meters taller than the Statue of Liberty. Fully fueled for liftoff, the Saturn V weighed 2.8 million pounds, the weight of about 400 elephants. The rocket generated 34.5 million newtons at launch, creating more power than 85 Hoover dams.

A car traveling at 50 km/h could go around the world about 800 times with the amount of fuel used by the Saturn V for a moon-orbiting mission. It could launch about 118,000 kg (~120 tons) into Earth orbit. That's about the weight of 10 school buses, and Saturn V could launch about 43,500 ks (~50 tons) to the Moon. That's about the same as four school buses.

Saturn V was developed at NASA's Marshall Space Flight Center in Huntsville, Alabama. It was one of three types of Saturn rockets built by NASA. Two smaller rockets, the Saturn I (1) and IB (1b), were used to launch humans into Earth orbit, and the Saturn V sent them beyond Earth orbit to the Moon.

The first Saturn V was launched in 1967 and was named Apollo 4, and Apollo 6 followed in 1968. Both of these rockets were launched unmanned. These launches tested the Saturn V rocket.

The first Saturn V launched with a crew was Apollo 8. On this mission, astronauts orbited the Moon, but did not land on it.

On Apollo 9, the crew tested the Apollo Moon Lander by launching it into Earth orbit. On Apollo 10, Saturn V launched the lunar lander to the Moon. The crew tested the Lander in space, but did not land it on the Moon.

In 1969, Apollo 11 was the first lunar landing mission by American astronauts. Saturn V rockets also made it possible for the Apollo 12, 14, 15, 16 and 17 crews to land on the Moon. On Apollo 13, the Saturn V lifted the crew into space, but a problem prevented them from being able to land the spacecraft on the lunar surface. That problem was not with the Saturn V, but with the Apollo spacecraft. The last unmanned Saturn V was launched in 1973 and was used to launch the Skylab space station into Earth orbit.

Additional actions were needed in the Apollo program before the great success of that period, as follows: the first manned Apollo space mission was Apollo 7. The three astronauts on Apollo 7 were Walter Schirra, Jr, Donn Eisele and Walter Cunningham. They spent 10 days, 20 hours, 20 hours, 9 minutes, and 3 seconds in space. Apollo 7 completed 163 orbits around the Earth, traveling over 7,317,555 km.

Then it was Apollo 13 that survived an oxygen tank explosion. The three astronauts on Apollo 13 were James Lovell, Jr., Fred Haise, Jr. and Jack Swigert. They spent 5 days, 22 hours, 54 minutes and 41 seconds in space. Apollo 13 completed 1.5 orbits around the Earth, traveling more than 700,000 total miles in space. "Houston, we've had a problem..." - astronaut Jack Swigert said

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to the Cape Canaveral command center in Cape Canaveral, Florida.

What do all these crews have in common? The Saturn V rocket that made all these launches possible. But could we make a Saturn V today? According to NASA, no. No doubt a more powerful launcher will someday be produced, but the Saturn V will be so deeply embedded in history that it will still be the standard against which all other rockets will be compared.

Although all the plans still survive on microfilm, and the construction and assembly of the rocket has been carefully documented, the vast infrastructure and tools needed to build the huge rocket have all been destroyed, relegated to museums or reused for other purposes.

Moreover, the men and women behind the project are either retired or dead.

Instead, it would be much simpler and cheaper to design and build a new rocket from scratch.

That's why NASA is working on its Space Launch System (SLS), SpaceX is working on a "BFR" prototype, and China is working on a super rocket that could rival the historic Saturn V.

Rezumat

Acest articol explorează modul în care racheta Saturn V a fost construită acum 55 de ani, marcând un moment istoric: primul zbor care a dus oameni pe un alt corp ceresc în afara planetei noastre, Pământul. În articol sunt prezentate caracteristici precum: înălțimea, greutatea, dar și istoria echipajelor Apollo care au efectuat diferite teste pentru cel mai mare pas al acelei perioade: „primul pas către cucerirea celui mai apropiat corp de Pământ, satelitul natural, Luna”, după cum afirmă Buzz Aldrin, singurul astronaut dintre cei trei care este încă în viață, într-un interviu.

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