

A decision was made to fund a complete restoration of the rocket using the Kansas Cosmosphere and Space Center before it was too late to save the vehicle. In Sept. 2002, the V-2 was moved to Kansas where it was completely taken apart, treated and reassembled with a new skin. Pieces of the rocket that were permanently removed are now on sale inside the museum gift shop.

To protect the V-2 from the desert's harsh environment and to provide better access to the rocket, the museum staff decided to place the V-2 in a protective building and position it horizontally so visitors can see inside it.

The V-2 is painted with a yellow and black paint scheme just like the first successful V-2 launched here on May 10, 1946. The paint scheme was designed to be highly visible but turned out to be just the opposite as the rocket climbed into the dark sky of near outer space. Later paint schemes used a white background with black lines and blocks.

V-2 Statistics

46 feet tall and 5.5 feet in diameter

27,000 lbs. at liftoff

19,000 lbs. was propellant (alcohol and liquid oxygen)

60,000 lbs. of thrust

2,000 lb. warhead or experimental payload

200 mile range

132 miles max altitude attained at White Sands – Aug. 22, 1951

For more information about the V-2 and the White Sands Museum, visit the museum's website at: www.wsmr-history.org/



This logo using a V-2 rocket was used early at White Sands to brand public literature and as an introductory slide for briefings.



The United States blasted into the Space Age at White Sands using captured German V-2 rockets after World War II.

V-2 Origins

The V-2 displayed at the White Sands Missile Range museum is one of the most complete in existence. It is German rocket #FZ04/20919 and came off the Mittelwerk assembly line in December 1944. It was captured, along with other rockets and equipment, by U.S. troops in April 1945.

The German V-2 is a result of the restrictive terms of the Versailles Treaty signed at the end of World War I. When Germany rebuilt its military in the 1930s, it looked to rocket technology to get around the treaty.

As the military expansion grew, the German army hired a young Wernher von Braun to be the technical director of the development group at Peenmunde. The first successful V-2 flight was on Oct. 3, 1942, when a rocket reached a height of 60 miles and impacted about 120 miles down range. During the war the Germans launched thousands of V-2s at targets in England and the mainland but they had little impact on the war.

Research Using the V-2

At the close of World War II, 300 train cars of V-2 engines, fuselages, propellant tanks, gyroscopes and associated equipment were lined up outside of Las Cruces, N.M., so the contents could be trucked to White Sands. The V-2 program here was designed to give Americans a chance to handle large rockets and to obtain valuable information about this new technology.

Credit has to be given to the military for incorporating universities and other researchers in pursuing the third goal of exploring the upper atmosphere. A committee was formed with both military and civilian scientists on board to review payload proposals for V-2 rockets. This led to an eclectic array of experiments that flew on the V-2s and paved the way for American manned space exploration.

Devices were sent aloft to sample the air at all levels to determine atmospheric pressures and what gases were present. Other instruments measured the level of cosmic radiation at various heights. Eventually, seeds were sent up, exposed and then planted after their return to see if the radiation had damaged them.

One experiment involved firing rifle grenades from the payload bay to see if such a method could be used to make artificial meteorites. They were not visible.

Several experiments were conducted using mammals in the payload. There was a series of Albert shots where Rhesus monkeys were sent aloft. On June 11, 1948, one of these monkeys rode a rocket from beginning to end. Unfortunately for the monkey, the parachute failed to open and he died on impact with the ground.

However, the monkey's respiration and heart rates were recorded during the flight. The results showed that a mammal could survive the extreme G forces at liftoff and the zero gravity experienced at the top, or apogee, of the flight. This must have given scientists and medical researchers confidence that a large mammal like a man could some day ride a rocket into space.

Not all V-2 launches were successful. In fact, only 68 percent of the flights were considered successful. One failure occurred on May 29, 1947, when a V-2 headed south instead of north. It ended up flying over El Paso and Juarez and crashing just outside of the Mexican city. Luckily no one was injured.

First Man-Made Object in Space

One very successful V-2 program at White Sands was the Bumper series. The Bumper was the first large two-stage rocket. The program used a V-2 as the first stage and a WAC Corporal (built by the Jet Propulsion Lab in California) as the second stage. On Feb. 24, 1949, a fully fueled Bumper reached an altitude of 250 miles and a speed of 5,000 miles per hour. It was the first manmade item in space and the fastest anything made by man had ever traveled.

The missile range's logo, "Birthplace of America's Missile and Space Activity," was developed because of this work using V-2s and other early testing here at White Sands.

Restoration

Originally, the missile range's lone remaining V-2 was displayed outdoors in an upright position in front of the headquarters building. By 2001, it was evident the V-2 was losing its battle against the winds, sand and rust. There were places where you could actually poke your finger through the crumbling skin.

