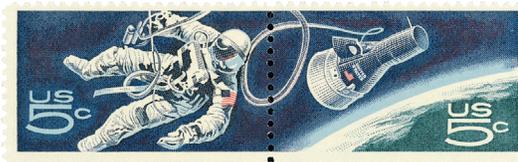


This Day in History... February 7, 1984

First Untethered Spacewalk

On February 7, 1984, two NASA astronauts conducted the first untethered spacewalk – leaving the space shuttle *Challenger* without being connected by a cable.

Spacewalks are a form of extravehicular activity (EVA), which is any activity that astronauts complete outside of their spacecraft. The Soviets were the first to complete a spacewalk on March 18, 1965, when Alexei Leonov spent 12 minutes outside of the *Voskhod 2* spacecraft. He carried a metal backpack with 45 minutes' worth of oxygen and had no control over his movement, aside from pulling on the 50-foot cable that tethered him to the spacecraft.



This stamp depicts Ed White conducting the first American spacewalk during Gemini IV.

Over the next two decades, all spacewalks were performed with the astronauts tethered to the spacecraft, to keep them from floating away. The US Air Force designed an Astronaut Maneuvering Unit in 1966, though it was never used in space. NASA then developed the Manned Maneuvering Unit (MMU), which was essentially a nitrogen jet-propelled backpack controlled by two joysticks. Moving the joysticks fired nitrogen jet thrusters, propelling the astronaut in any direction he chose. The MMU had enough propellant to last six hours and could travel an average velocity of 80 feet per second.

Bruce McCandless earned a reputation as a respected and experienced astronaut and was selected to perform the first untethered spacewalk with the MMU on the *Challenger* mission STS-41-B on February 7, 1984. Traveling 164 miles above Hawaii, McCandless traveled up to 320 feet away from the shuttle. Fellow *Challenger* astronaut Robert L. Stewart got his turn using the MMU after McCandless. On that first day, they logged a combined 5 hours and 55 minutes with the MMU. Two days later, they spent another 6 hours and 17 minutes using the MMU.



Most US spacewalks were conducted during space shuttle and International Space Station missions.

NASA retired the MMU after those three missions, opting to stick with the safer tethered missions. Though, in 1994 NASA introduced the Simplified Aid For EVA Rescue (SAFER), but it's only intended for use in emergencies.

Ed White was the first American to perform a spacewalk on June 3, 1965 as part of the Gemini IV mission. He spent 21 minutes outside the spacecraft, connected by a 25-foot umbilical cable that supplied his oxygen. Unlike the Soviet spacewalk, White was able to control his movement with a Hand-Held Maneuvering Unit, though it only had enough propellant to last for 20 seconds.

The picture on this stamp was captured by McCandless during his untethered spacewalk.



Challenger stamp issued in 1996



McCandless described his historic achievement: "I was grossly over-trained. I was just anxious to get out there and fly. I felt very comfortable... It got so cold my teeth were chattering and I was shivering, but that was a very minor thing... I'd been told of the quiet vacuum you experience in space, but with three radio links saying, 'How's your oxygen holding out?', 'Stay away from the engines!' and 'When's my turn?', it wasn't that peaceful... It was a wonderful feeling, a mix of personal elation and professional pride: it had taken many years to get to that point."

The MMU was used during two more missions. In April 1984, two astronauts used it to capture and repair a malfunctioning Solar Max satellite. And that November, the MMU was used to get the malfunctioning Westar VI and Palapa B2 satellites.

The other two missions for which the MMU was used were to retrieve malfunctioning satellites.



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