This Day in History… August 12, 1960

Echo 1

On August 12, 1960, Echo I, the world's first passive communications satellite, was placed in orbit around the Earth.

Stamp pictures a satellite orbiting earth while emitting radio waves.

Echo 1 was part of NASA's Project Echo, America's first passive communications satellite experiment. The goal was to send radio signals into space from one location, bounce them off the satellite, and receive them at another location.

An earlier test had created quite a stir. In the early morning hours of October 28, 1959, NASA launched a 110-foot-diameter sphere into the sky. However, the aluminum-covered balloon exploded as it was inflated high in the sky and rained down thousands of shiny fragments that many thought could be meteors or UFOs.

Fortunately, Echo 1 would prove more successful. It was designed by the Space Vehicle Group of the NASA Langley Research Center and built by General Mills in Minneapolis, Minnesota. They conducted ground inflation tests there, in which it was hung from the ceiling and inflated using a blower. The 150-pound balloon required 40,000 pounds of air while on the ground, but would only need several pounds of gas to stay inflated in orbit.

Echo 1 was launched on August 12, 1960, and was inflated in space. The satellite was placed into a nearly circular orbit of the Earth at an altitude of about 1,000 miles. This enabled it to circle the planet every two hours. The first transmissions reflected by Echo 1 were sent between Bell Laboratories in Holmdel, New Jersey, and NASA's Jet Propulsion Laboratory in Goldstone, California.

During its time in space, Echo 1 served as a passive reflector of microwave signals. Signals were sent from one location on Earth, bounced off the satellite, and then received at another point on Earth. These included telephone, radio, and television signals. The satellite also helped in calculations of atmospheric density and solar pressure. After almost eight years in orbit, Echo 1 reentered Earth's atmosphere and burned up on May 24, 1968.

A second, larger balloon, Echo 2, was launched on January 25, 1964. By that time, other communication satellites had come along, but it was used for scientific experiments. It was also part of one of the first space experiments to involve both the US and the USSR, when a radio signal was transmitted from England, bounced off Echo 2, and received in Russia. Echo 2 remained in operation for five years.

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