

Above and beyond

Started by Howard Hughes, Boeing's satellite-making plant in El Segundo has been an industry leader for 50 years

By Mike Lombardi and Diana Eastman

One of the great legacies of The Boeing Company is the development of the commercial jet, which has made it possible to bring people together from around the world in a matter of hours.

Satellites, too, have brought people closer—at the speed of light.

And that's another significant Boeing legacy, albeit one that may not be as well-known as the company's contributions to the jet age.

But over the past five decades, Boeing Space & Intelligence Systems, which includes the former Hughes Space and Communications Co., Rockwell International and McDonnell Douglas, has been a major force in the satellite market, pioneering technologies that people around the world use every day, from communication and entertainment

to navigation and weather monitoring.

Boeing's legacy of satellite development began 50 years ago, with aviation icon and billionaire Howard Hughes.

In 1961, Hughes formed the Hughes Space and Communications Co. as part of Hughes Aircraft. The new company set up operations in El Segundo, Calif., at a plant that was formerly operated by American Motors.

First opened in 1948 as the El Segundo Plant for Nash Motors, the 500,000-square-foot (46,500-square-meter) facility had been purchased by the reclusive Hughes in 1955 for \$3 million. Once the birthplace of the Nash Rambler, today it is the Boeing Satellite Development Center and, with more than a million square feet (93,000 square meters), it is the world's largest satellite factory.

Although the former Soviet Union

launched the first satellite, Sputnik, into orbit, on Oct. 4, 1957, Hughes Space and Communications launched the satellite industry with the first geosynchronous communications satellite, Syncom, in 1963. The company followed with the launch of Early Bird, the first commercial communications satellite. Another milestone came in 1966 with the Application Technology Satellite ATS-1, the first geosynchronous satellite capable of meteorological observations.

Hughes Space and Communications did not limit itself to satellites that orbited Earth; it also took a leading role in exploring the solar system, starting in 1966 when Surveyor 1 made the first fully controlled soft landing on the moon. It paved the way for U.S. astronauts landing on the moon three years later. In 1978, Pioneer Venus

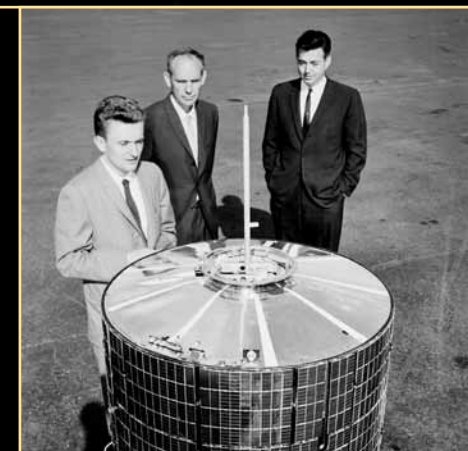
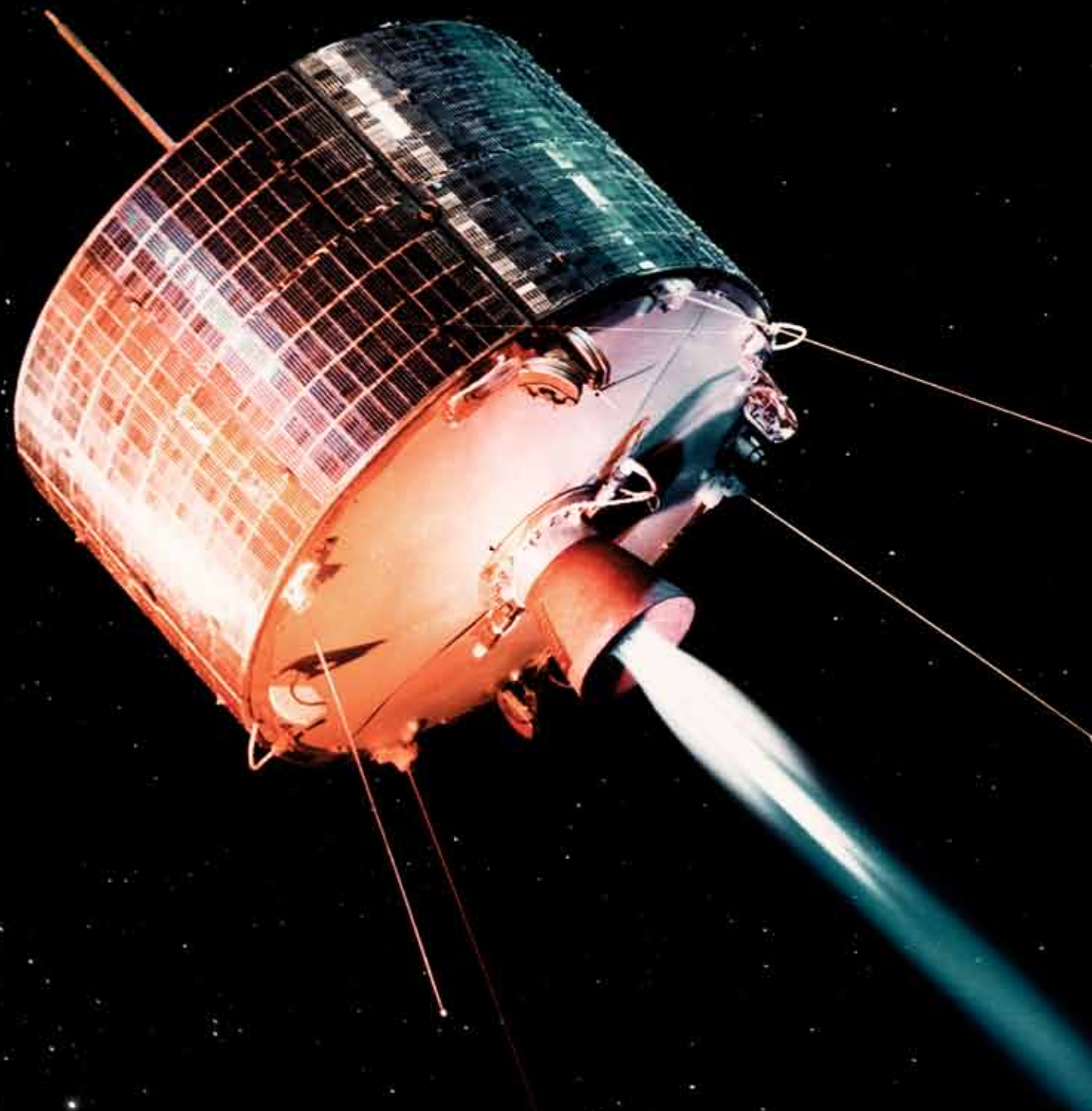
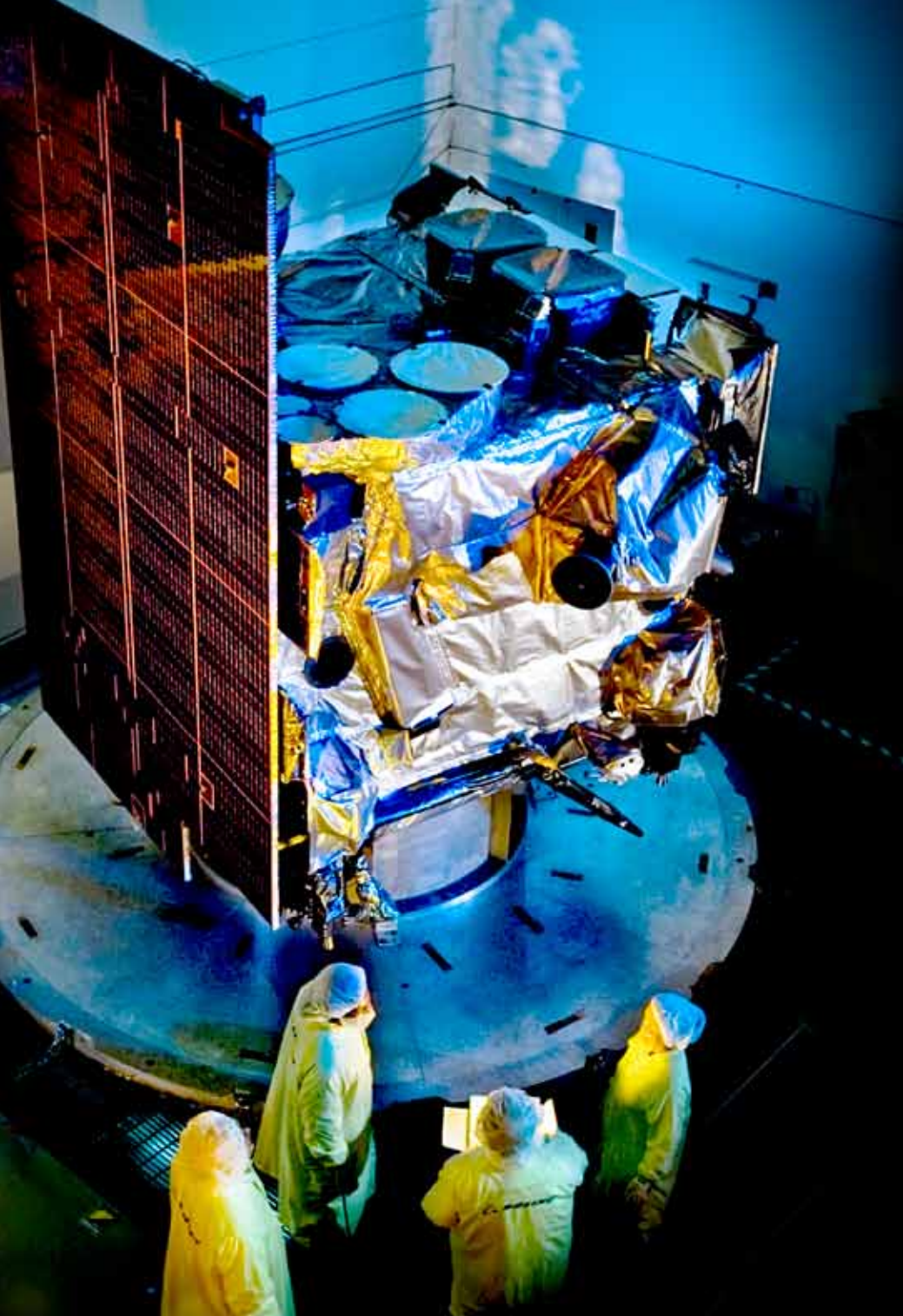


PHOTO ILLUSTRATION: (Above) Syncom, the first geosynchronous communications satellite, was built by Hughes Space and Communications. NASA

PHOTOS: (From far left) The Nash/American Motors sign comes down at the El Segundo, Calif., plant in 1961 to make way for satellite-maker Hughes Space and Communications; satellite pioneers Don Williams (from left), Thomas Hudspeth and Harold Rosen are shown with the Syncom satellite; inside the El Segundo plant in the early days; Apollo 12 astronaut Charles Conrad Jr. inspects the Surveyor 3 satellite, which helped survey moon landing locations; and employees construct the Pioneer Venus satellite, which performed the first extensive radar-mapping of Venus. BOEING ARCHIVES



performed the first extensive radar mapping of the cloud-enshrouded planet, and in the 1990s Hughes' Galileo probe became the first spacecraft to penetrate Jupiter's atmosphere.

Boeing acquired Hughes Space and Communications in October 2000. Today, there are more than two dozen satellites in production at the El Segundo plant, including the newly developed Boeing 702MP (Medium Power), an evolution of the 702 series that will launch in 2012.

Other programs include MEXSAT, a satellite communications system for the government of Mexico, and Inmarsat-5, a series of satellites for global mobile communications. In addition to commercial satellites, Boeing makes a range of satellites for the military, including Global Positioning System satellites that provide worldwide navigation.

It's been an amazing record of achievement. Since Hughes Space and Communications set up operations in El Segundo in 1961, nearly 300 satellites built there have been launched into space on various commercial and military missions. They have transformed the world, and how billions of people live, work and communicate. They have helped blaze the way in the exploration of space—and understanding Earth itself.

Howard Hughes once said that he wanted to be remembered for only one thing—his contribution to aviation. Boeing's El Segundo satellite-making business is a testament to that legacy. ■

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PHOTOS: (Above) GOES-15 was built by Boeing Space & Intelligence Systems. It's part of the fleet of Geostationary Operational Environmental Satellites that provide enhanced Earth observation and weather monitoring to NASA and the National Oceanic and Atmospheric Administration. **BOEING**
(Insets, from left) The GPS IIF is the newest addition to a constellation of satellites built for the U.S. Air Force that a billion people rely on for precise timing and navigation; and the Boeing 702HP (High Power), the world's most powerful communications satellite, first launched in 1999. **BOEING**