



Launch Pad 39B

Perhaps nowhere on NASA's Kennedy Space Center in Florida has the modernization effort to prepare the center for a flexible future been as obvious as it has at Launch Pad 39B. Built as one of two identical launch pads for the enormous Saturn V moon rocket, "pad B," as it is known at Kennedy, was restructured for shuttle launches and modified again for the launch of an Ares I-X test vehicle in 2009.

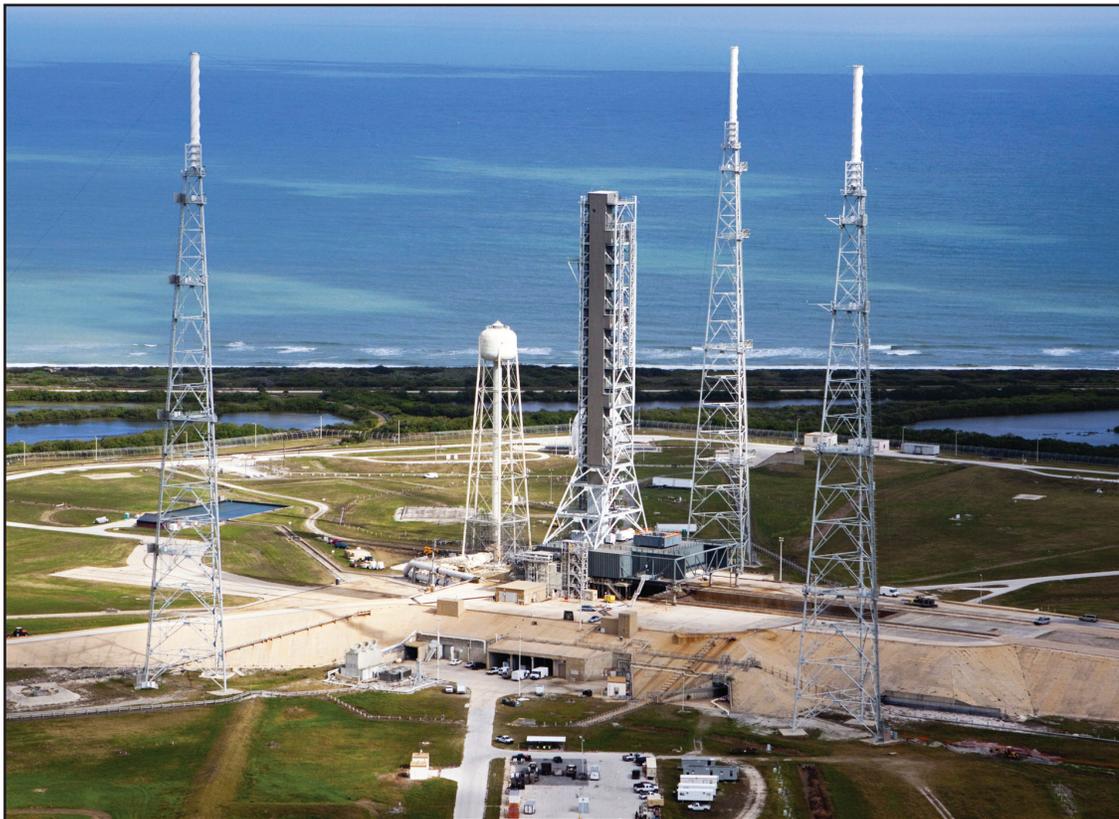
It is being modified again by NASA's Ground Systems Development and Operations Program, this time to host several different kinds of launches. The fixed service structure and rotating service structure, both built for space shuttle needs, have been removed while the basic infrastructure of power, hydraulics and water systems have been overhauled. Several miles of worn or unneeded wiring, pipes and cables were removed.

Most noticeably, three, 600-foot-tall masts were built at the pad to provide lightning protection to

vehicles as they stand ahead of launch. The tower that holds 300,000 gallons of water to dump on the pad for sound suppression was sandblasted and repainted so it can continue to stand safely within a few miles of the Atlantic Ocean and its corrosive salt air.

The guiding principle behind the changes has been to make the area a "clean pad," meaning that whatever company wants to launch its rocket from there will be able to do so. It is, in many ways, just like the structure that supported Apollo/Saturn V launches. In those cases, the rocket moved to the launch pad with its own tower rather than having a tower standing at the pad full-time.

Because each rocket design has its own support needs, it's not practical to have a tower standing at the pad. The basics that every rocket needs will remain in place, such as electrical power, water system, flame trench and a safe launch area. The other needs of



The mobile launcher (ML) stands at Launch Pad 39B at NASA's Kennedy Space Center in Florida, on Nov. 28, 2011. Data on the ML was collected from structural and functional engineering tests and used for the next phases of construction overseen by NASA's Ground Systems Development and Operations Program. The 355-foot-tall ML structure, which took about two years to construct, is being modified to support NASA's Space Launch System, the heavy-lift rocket that will launch astronauts farther into space than ever before.

NASAfacts



A Saturn V rocket sits on Launch Pad 39B before Apollo 10 at NASA's Kennedy Space Center in Florida, on May 16, 1969.

individual rockets, including access for workers, can be met with the towers or other structures that deliver the rocket to the pad.

Far shorter pad stays are expected than during the shuttle years. Rocket designers expect to do almost all their preparations inside the Vehicle Assembly Building

before the launcher goes to the pad. That means a rocket would spend 10 days or less at the pad ahead of liftoff, rather than the four-to-six weeks a shuttle demanded.

The mobile launcher that is expected to support the Space Launch System's enormous rocket and its Orion spacecraft was used to test



NASA's Ares I-X test rocket rests on Launch Pad 39B at NASA's Kennedy Space Center in Florida, on Oct. 28, 2009.

some of the pad's changes and make sure everything will be compatible when the rocket begins test flights later this decade. Launch Complex 39 can accommodate medium- to super-heavy class vehicles including the SLS.

The refurbishment is not finished and future efforts will include the flame trench and deflector. The flame trench funnels sound waves and exhaust away from a launching rocket to prevent vibrations from damaging the craft during ascent. The trench is lined with fireproof bricks that have been

in place since the late 1960s.

Apollo 10 was the first mission to begin at Launch Pad 39B when it lifted off on May 18, 1969, on a mission to rehearse the first moon landing. Three crews of astronauts launched to the Skylab space station in 1973 from pad B. The three Apollo astronauts who flew the historic Apollo-Soyuz mission to link up in space with Soviet cosmonauts also launched from Launch Pad 39B. Fifty-three space shuttle missions began there, the last a nighttime liftoff for STS-116.



Launch Pad 39B at NASA's Kennedy Space Center in Florida, shown here Oct. 14, 2011, has been refurbished extensively and work is continuing to modify the pad to support a variety of launch vehicles in the future.

National Aeronautics and Space Administration

John F. Kennedy Space Center
Kennedy Space Center, FL 32899

www.nasa.gov

MORE ONLINE

For more information on the Ground Systems Development and Operations Program, go to <http://go.nasa.gov/groundsystems>

For the latest on Launch Pad 39B, go to: www.nasa.gov/exploration/padBtransformation.html