

B-2 TEST STAND



- The B-1/B-2 Test Stand is a dual-position, vertical-firing facility built in the 1960s to test Saturn V rocket stages that carried humans to the Moon during the **APOLLO PROGRAM**. The B-1 side is equipped for single-engine tests. The B-2 side is designed to test rocket stages.
- NASA conducted the **FIRST-EVER HOT FIRE TEST** on the B-2 Test Stand, a 15-second firing of the Saturn S-IC-T stage, on March 3, 1967.
- Twelve **S-IC FLIGHT STAGES** were tested on the B-2 Test Stand from April 1967 to October 1970. S-IC-4 through S-IC-12 powered Apollo 9 through Apollo 17 missions to the Moon. S-IC-13 launched Skylab into orbit. S-IC-14 and S-IC 15 never flew to space.
- The space shuttle **MAIN PROPULSION TEST ARTICLE**, consisting of an external tank and three main engines linked together with a simulated shuttle orbiter, was tested on the B-2 Test Stand from April 1978 through January 1981.
- The RS-68 powered **DELTA 4 COMMON BOOSTER CORE** was tested on the B-2 Test Stand from November 1999 to May 2001.
- The B-2 Test Stand was modified to test the core stage of the new Space Launch System, the cornerstone vehicle for NASA's **ARTEMIS PROGRAM** that will return humans to the Moon by 2024. Core stage testing culminates with the simultaneous firing of four RS-25 engines, just as will occur during an actual mission. Once tested, the core stage will power the launch of the first Space Launch System mission – **ARTEMIS I**.
- The B-1/B-2 Test Stand is anchored in the ground with 144 feet of steel and concrete. As constructed, the soft core of the B-2 side was about 290 feet tall. The new steel superstructure added for testing of the **SPACE LAUNCH SYSTEM CORE STAGE** extends that height to almost 350 feet, ranking the stand as one of the tallest structures in the state of Mississippi.
- The main derrick crane atop the B-2 Test Stand was extended 50 feet with an increased load rating of 195 tons in order to lift the Space Launch System core stage, which is larger and heavier than the earlier Saturn V stages. The core stage stands **212 FEET TALL** with a diameter of 27.6 feet.
- The simultaneous firing of the Space Launch System core stage's four RS-25 engines will generate **1.6 MILLION POUNDS** of thrust at sea-level, increasing to more than **2 MILLION POUNDS** at altitude during a launch.
- More than 32,500 5/32-inch holes in the B-2 Test Stand flame deflector direct more than **240,000 GALLONS OF WATER** a minute to cool engine exhaust during a test. Another **92,000 GALLONS OF WATER** per minute is sprayed through 92 nozzles to provide vibro-acoustic suppression protection to the core stage during testing.
- More than **100 WATER NOZZLES** are arrayed across the test stand to provide a curtain of water over the length of the core stage and across the facility, if needed, to prevent damage in the event of a fire or cryogenic spill.
- The average U.S. home uses about 100,000 gallons of water a year. For a Space Launch System core stage test, the B-2 Test Stand will use that amount **EVERY 18 SECONDS**.
- The B-2 stand is serviced by the Stennis High Pressure Industrial Water Facility. The original water system has been upgraded due to age and in order to increase the water flow needed for core stage testing. The system now is capable of delivering **335,000 GALLONS PER MINUTE** of water to the B-2 Test Stand via 96-inch pipes. The capacity represents an increase of 25,000 gallons per minute from the original system.
- The B-1/B-2 Test Stand originally was rated for a maximum thrust load of 11 million pounds. However, the stand flame deflectors currently are limited to 3 million pounds of thrust.