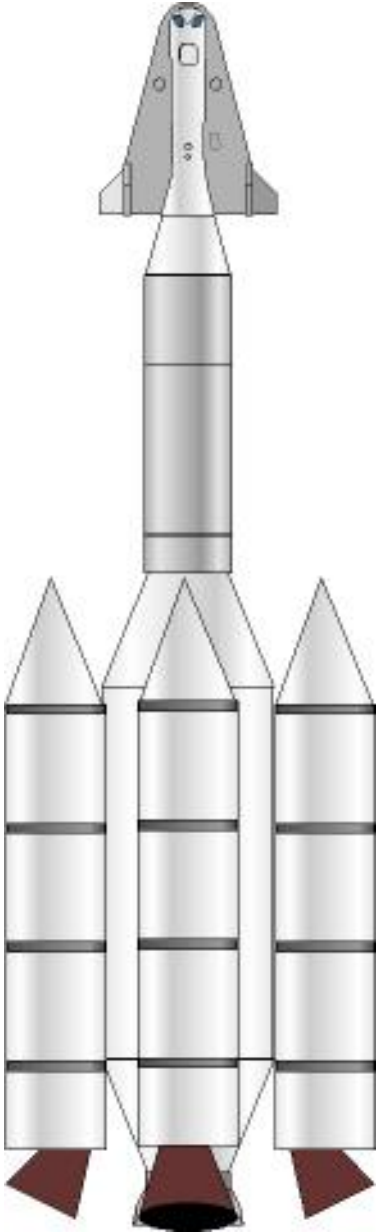


SLS AB-825



Orbital launch vehicle. *Year:* 1961. *Family:* [SLS](#). *Country:* USA. *Status:* Study 1961. *Other Designations:* Space Launching System AB-825.

The AB-825 represented a medium launch vehicle of the USAF 1961 Space Launching System family. The AB-825 would have conducted earth orbit tests of partially-fuelled Lunex lunar lander stages, and also have boosted the Lunex manned glider on circumlunar test flights. It consisted of the 'A' stage and 'B' stages with 180 inch diameter short-length solid fuel booster motors.

Manufacturer: USAF. LEO Payload: 39,460 kg (86,990 lb). to: 560 km Orbit. at: 28.00 degrees. Payload: 10,890 kg (24,000 lb). to a: translunar trajectory. Liftoff Thrust: 14,700.000 kN (3,304,600 lbf). Total Mass: 1,000,000 kg (2,200,000 lb). Core Diameter: 7.62 m (24.99 ft). Total Length: 55.00 m (180.00 ft). Span: 16.76 m (54.98 ft).

Stage Data - SLS AB-825

- *Stage Number: 1. 2 x Stage: [SLS SRB 2720](#). Gross Mass: 366,716 kg (808,470 lb). Empty Mass: 56,000 kg (123,000 lb). Thrust (vac): 8,130.000 kN (1,827,690 lbf). Isp: 260 sec. Burn time: 100 sec. Isp(sl): 235 sec. Diameter: 4.57 m (14.99 ft). Span: 4.57 m (14.99 ft). Length: 51.00 m (167.00 ft). Propellants: [Solid](#). No Engines: 1. Status: Study 1961. Four such 180 inch segmented solid rocket motors provided first stage thrust for Project Lunex. A liquid propellant first stage was considered as an alternative, but the solid stage was the baseline. Empty mass, specific impulse estimated.*
- *Stage Number: 2. 1 x Stage: [SLS Stage B](#). Gross Mass: 160,000 kg (350,000 lb). Empty Mass: 11,200 kg (24,600 lb). Thrust (vac): 1,778.651 kN (399,857 lbf). Isp: 424 sec. Burn time: 345 sec. Diameter: 7.62 m (24.99 ft). Span: 7.62 m (24.99 ft). Length: 25.00 m (82.00 ft). Propellants: [Lox/LH2](#). No Engines: 2. Engine: [J-2](#). Status: Study 1961. Tranlunar injection stage for Project Lunex. Masses estimated based on optimum apportioning of B+C stage total masses.*
- *Stage Number: 3. 1 x Stage: [SLS Stage A](#). Gross Mass: 59,000 kg (130,000 lb). Empty Mass: 6,000 kg (13,200 lb). Thrust (vac): 889.325 kN (199,928 lbf). Isp: 424 sec. Burn time: 250 sec. Diameter: 4.28 m (14.04 ft). Span: 4.28 m (14.04 ft). Length: 15.00 m (49.00 ft). Propellants: [Lox/LH2](#). No Engines: 1. Engine: [J-2](#). Status: Study 1961. Smallest Lox/LH2 stage planned for SLS series. Empty mass estimated. Sized for rail transport within USA.*

SLS AB-825 Chronology

- **Air Force completed studies on a family of advanced heavy-lift launch vehicles for use in the late 1960's** *Nation: [USA](#). The launchers used solid rocket boosters together with Lox/LH2 upper stages. The modular stages could be combined in various ways to achieve a range of launch vehicles (as for the USAF Lunex lunar base project). These studies would provide the basis for the later Titan derivatives and, eventually, the final space shuttle design.*