

Launch Systems Discussed in this Report

Existing Systems



Space Shuttle—a piloted, partially reusable launch vehicle capable of lifting about 48,000 pounds to low-Earth orbit (LEO). The Shuttle fleet now consists of three orbiters; a fourth is on order. The Shuttle had completed 24 flights successfully prior to the loss of the orbiter Challenger in January 1986.

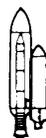


Titan IV— an expendable launch vehicle (ELV) manufactured by Martin Marietta Corporation, which can lift 39,000 pounds of payload to LEO. This vehicle will be launched for the first time later this year, and will be the Nation's highest capacity existing ELV.



Medium Launch Vehicle— either a Delta II manufactured by McDonnell Douglas, with a lift capability of 7,600 pounds to LEO; or an Atlas Centaur II manufactured by General Dynamics with a lift capacity of about 13,500 pounds to LEO.

Proposed Systems



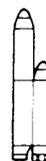
Shuttle-C – an unpiloted cargo vehicle, derived from the Shuttle, with a heavy lift capacity of 100,000 to 150,000 pounds to LEO. It would use the existing expendable External Tank and reusable Solid Rocket Boosters of the current Shuttle, but would replace the orbiter with an expendable cargo carrier.



Shuttle II— a fully reusable piloted launch vehicle derived from the current Shuttle. Although Shuttle II is not a firm concept, OTA assumes that it could carry payloads comparable to those carried by the Shuttle but that it would be less costly to operate.



Titan V— a heavy lift ELV derived from the Titan IV. Its payload capacity could range from 60,000 to 150,000 pounds to LEO.



Transition Vehicle— a partially reusable unpiloted launch vehicle with recoverable engines designed to be built with existing technology.



Advanced Launch System (ALS) —a totally new launch system under study by the Air Force and NASA that would be designed to launch large cargo payloads economically at high launch rates. OTA assumes a partially reusable vehicle featuring a flyback booster, a core stage with expendable tanks and payload fairing, and a recoverable payload/avionics module.