



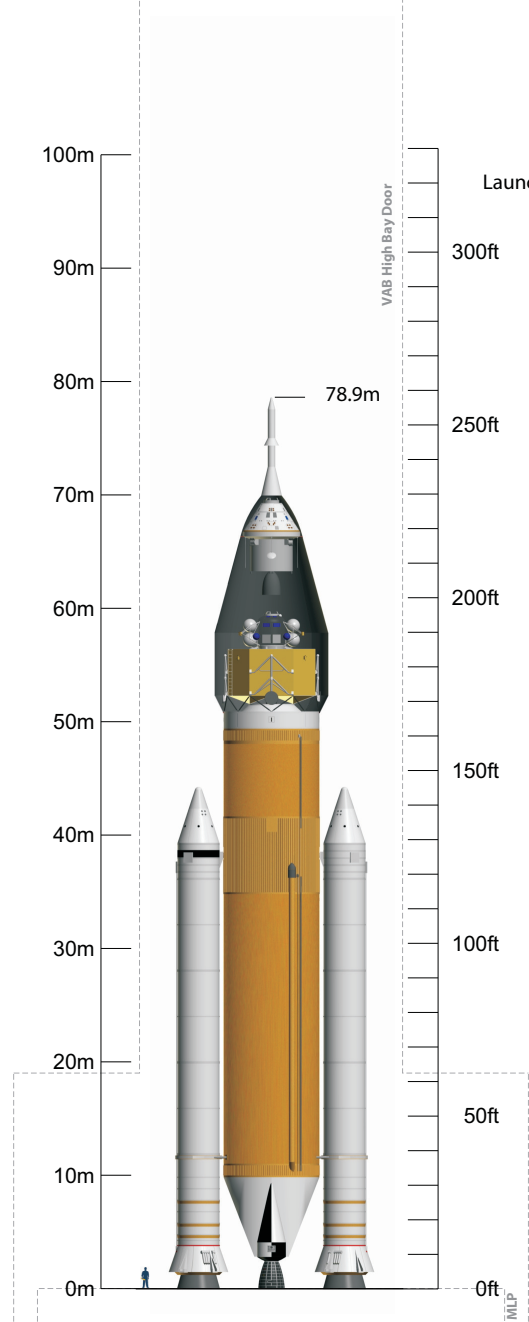
Vehicle Concept Characteristics - LV 41.4000.10050

Launch Site KSC LC-39 (Latitude: 28.6084°)

GLOW **4,558,182lb (2,067,556kg)**
 Payload Fairing 32.8 x 18.4ft (10.0 x 5.6m)
 Payload Envelope 30.2 x 18.4ft (9.2 x 5.6m)
 Payload Fairing Jettison Mass 12,571lb (5,702kg)
 Payload Fairing Jettison After Orbital Insertion
 Launch Abort System Jettison Mass 16,083lb (7,295kg)
 Launch Abort System Jettison 259.0s @ 57.9nmi

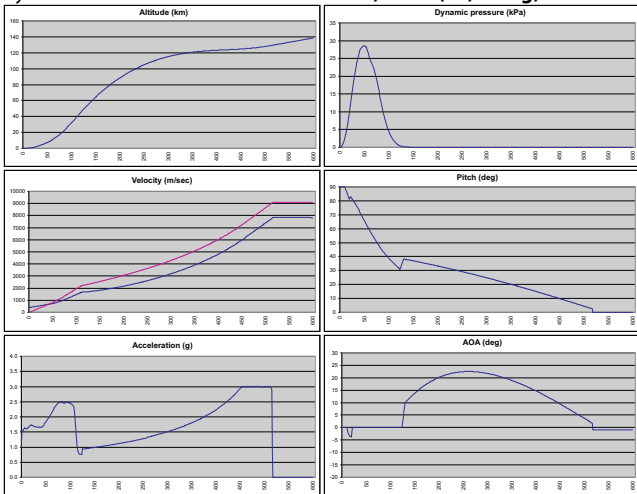
BOOSTERS (each)
 Design Heritage Shuttle RSRM - Flown Unchanged
 Propellants PBAN
 Usable Propellant 1,111,604lb (504,215kg)
 Stage pmf 0.8561
 Dry Mass 183,948lb (83,437kg)
 Burnout Mass 186,864lb (84,760kg)
 # Boosters / Type 2 / 4-segment Shuttle RSRM
 Booster Thrust (@ 0.7s) SL 2,892,912lbf (1,312,203kgf / 12,868,314N)
 Vac 3,142,302lbf (1,425,324kgf / 13,977,656N)
 Booster Isp (@ 0.7s) SL 237.0s
 Vac 269.1s
 Booster Burn Time 123.8s

CORE STAGE
 Design Heritage Shuttle Super Light Weight Tank ET
 Propellants LOX / LH2
 Gross Propellant 1,621,191lb (735,360kg)
 Usable Ascent Propellant 1,604,979lb (728,006kg)
 Unusable Residuals 16,047lb (7,279kg)
 In-Flight Losses 325lb (147kg)
 Propellant Offload 0.00%
 Stage pmf 0.9107
 Dry Mass 140,489lb (63,725kg)
 Burnout Mass 156,536lb (71,004kg)
 # Engines / Type 3 / SSME-Block-II
 Engine Thrust (@ 104.5%) SL 392,326lbf (177,956kgf / 1,745,155N)
 Vac 490,847lbf (222,644kgf / 2,183,396N)
 Engine Isp (@ 104.5%) SL 361.4s
 Vac 452.2s
 Mission Power Level 104.5%
 Core Burn Time 517.1s



DYNAMICS Blackzone Safe Trajectory
 Thrust : Weight @ Liftoff 1.528 : 1
 Max Dynamic Pressure 597.4psf (28,602Pa)
 Max g's During Ascent 3.00g
 Insertion Altitude 70.0nmi (129.6km)

ASCENT PERFORMANCE
 Delivery Orbit 30.0 x 130.0nmi, 29.0°
 Payload w/ regular NASA GR&A's 170,221lb (77,211kg)
 Payload w/ additional 10% Reserve **153,199lb (69,490kg)**



* ASE is part of the Payload, not additional