D.2 Atlas Launch and Performance History

Atlas space-launch vehicles, originally manufactured by General Dynamics and currently by Lockheed Martin, derived from the Atlas ICBM series developed in the 1950s. The primary one-and-one-half-stage vehicle played a major role in early lunar exploration activities (the unmanned Ranger, Lunar Orbiter, and Surveyor programs), and planetary probes (Mariner and Pioneer). Table 40 shows a summary of Atlas configurations since the beginning of the program.[10]

Table 40. Summary of Atlas Vehicle Configurations

Configuration	Description
A	ICBM single-stage test vehicle
B, C	ICBM 1½-stage test vehicle
D	ICBM and later space-launch vehicle
E, F	First an ICBM (1960), then a reentry test vehicle (1964), then a space-launch vehicle (1968)
LV-3A	Same as D except Agena upper stage
LV-3B	Same as D except man-rated for Project Mercury
SLV-3	Same as LV-3A except reliability improvements
SLV-3A	Same as SLV-3 except stretched 117 inches
LV-3C	Integrated with Centaur D upper stage
SLV-3C	Same as LV-3C except stretched 51 inches
SLV-3D	Same as SLV-3C except Centaur uprated to D-1A and Atlas electronics integrated with Centaur (no longer radio guided)
G	Same as SLV-3D but Atlas stretched 81 inches
H	Same as SLV-3D except with E/F avionics and no Centaur
I	Same as G except strengthened for 14-ft payload fairing, ring laser gyro added
II	Same as I except Atlas stretched 108 inches, engines uprated, hydrazine roll-control added, verniers deleted, Centaur stretched 36 inches
IIA	Same as II except Centaur RL-10s engines uprated to 20K lbs thrust and 6.5 seconds Isp increase from extendible RL-10 nozzles
IIAS	Same as IIA except 4 Castor IVA strap-on SRMs added

Atlas A, B, and C were developmental ICBMs. Atlas D, E, and F configurations were deployed as operational ICBMs during the 1960s. During that time, some Atlas Ds were modified as space-launch vehicles in the LV series: LV-3A, 3B, and 3C. The Standardized Launch Vehicle (SLV) series derived from a need to reduce lead times in transforming Atlas missiles to space-launch vehicles. The SLV series began with the SLV-3 vehicle, which used an Agena upper stage. The G and H vehicles evolved from the SLV series. Eventually the I, II, IIA, and IIAS configurations were developed with the aim of also supporting commercial launches.