

Black Brant V Launch Vehicle (21.XXX)

General

The Black Brant V (BBV) is a single-stage solid propellant sounding rocket developed by Bristol Aerospace, Ltd. in Winnipeg, Canada. There is a 3-fin version (VB) and a 4-fin version (VC). Figure F.1-1 shows the Black Brant VC (4 fin) vehicle.



Figure F.1-1: Black Brant V Launch Vehicle

Vehicle Performance

The 26 KS 20,000 Black Brant V rocket motor produces an average thrust level of 15,596 pounds and an action time of 32.42 seconds. The primary diameter of the Black Brant V is 17.26 inches and it is 210 inches long. Loaded weight of the motor including hardware is 2,803 pounds which includes 2243 pounds of propellant.

Payloads

The standard payload configuration for the Black Brant V vehicle is 17.26 inches diameter with a 3:1 ogive nose cone shape. Payload length for the Black Brant V is limited to approximately 200 inches and weight is limited to approximately 1200 pounds. Because of the relatively high dynamic pressures, bulbous (larger than 17.26 inches diameter) payloads cannot be accommodated on the Black Brant V vehicle. The SPARCS VII can be flown on this vehicle. See Section 5 for information regarding SPARCS VII.

Standard hardware systems that are available for Black Brant V motors include aft recovery systems for 750 lb. or 1000 lb. recovered weights. An Ogive Recovery System Assembly (ORSA) for the same weight ranges, payload separation systems (including a High Velocity Separation System) and despin systems are also available. These units are modular "stackable" such that a great deal of flexibility exists to meet experiment requirements.

Performance Graph

Performance parameters for the Black Brant VC MK1 are shown in Figure F.1-2.

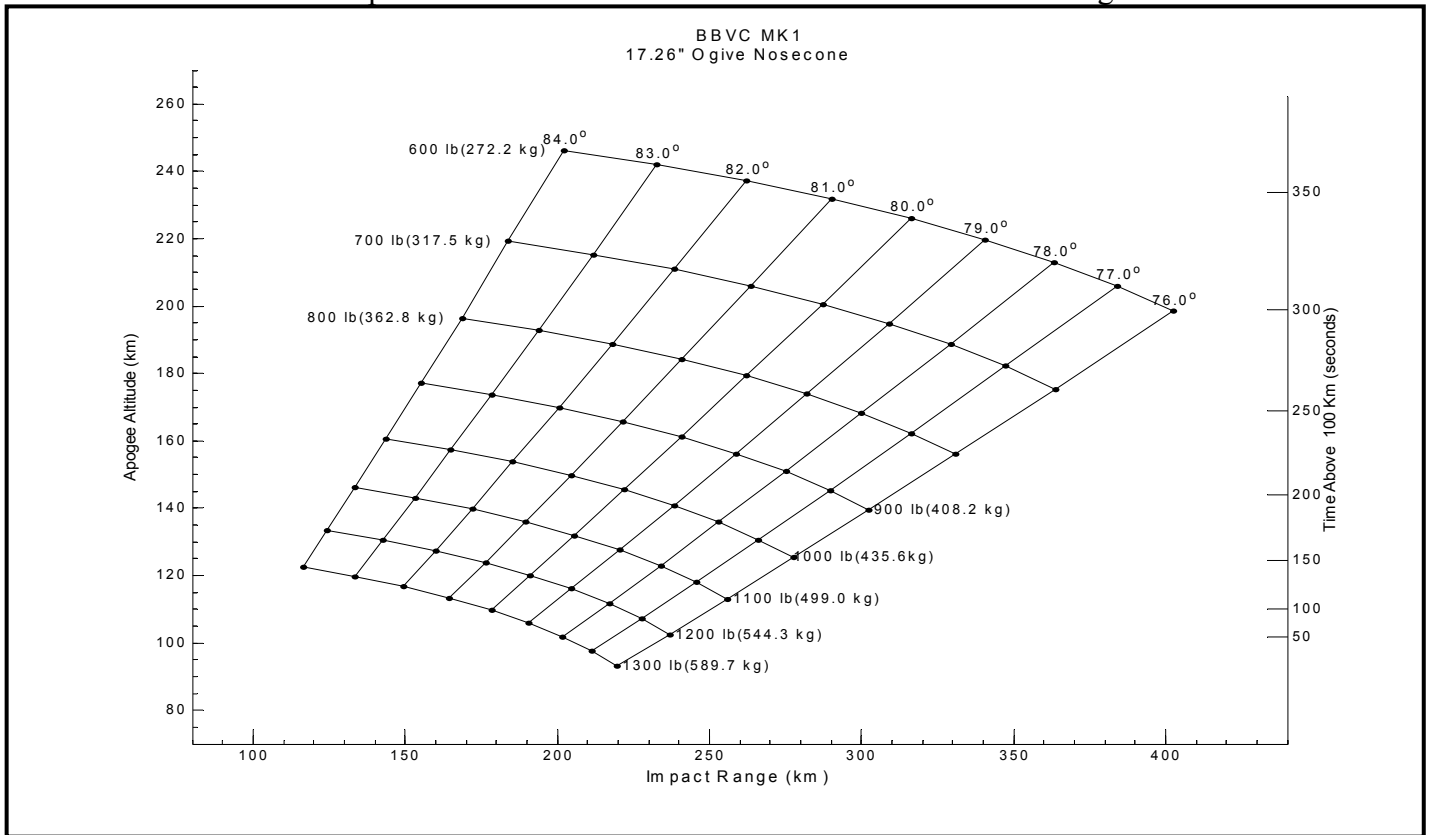


Figure F-1-2: Black Brant VC MK1 Launch Vehicle Performance