

# Milestone Review Flysheet

FRR

<b>Institution Name</b>	Northwest Indian College
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<b>Milestone</b>	CDR
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Vehicle Properties	
Diameter (in)	4
Length (in)	112.625
Gross Liftoff Weight (lb)	23.9
Launch Lug/button Size	0.630" x 0.680" (large)
Motor Retention	Aero Pack Tail Cone/Retention

Motor Properties	
Motor Manufacturer	CTI
Motor Designation	L640
Max/Average Thrust (N/lb)	1590/630.4
Total Impulse (N-sec/lb-sec)	2772.2/1862.83
Mass pre/post Burn (lb)	4.95/2.85

Stability Analysis	
Center of Pressure (in from nose)	76.29
Center of Gravity (in from nose)	71.46 w/motor
Static Stability Margin	1.2
Thrust-to-Weight Ratio	13:1
Rail Size (in) / Length (in)	1.5 x 96 in

Ascent Analysis	
Rail Exit Velocity (ft/s)	81.12
Max Velocity (ft/s)	632
Max Mach Number	0.57
Max Acceleration (ft/s <sup>2</sup> )	367.51
Peak Altitude (ft)	5,536/5,280

Recovery System Properties				
Drogue Parachute				
Manufacturer/Model	LOC Precision			
Size	18"			
Altitude at Deployment (ft)	5,280			
Velocity at Deployment (ft/s)	0.03			
Terminal Velocity (ft/s)	92.8			
Recovery Harness Material	Tubular Nylon			
Harness Size/Thickness (in)	9/16"			
Recovery Harness Length (ft)	20			
Harness/Airframe Interfaces	3/8" closed steel eyebolt			
Kinetic Energy During Descent (ft-lb)	Section 1	Section 2	Section 3	Section 4
	1075	1324		

Recovery System Properties				
Main Parachute				
Manufacturer/Model	Sky Angle Classic 52			
Size	89 sq ft			
Altitude at Deployment (ft)	700			
Velocity at Deployment (ft/s)	92.5			
Landing Velocity (ft/s)	21.24			
Recovery Harness Material	Tubular Nylon			
Harness Size/Thickness (in)	9/16"			
Recovery Harness Length (ft)	30			
Harness/Airframe Interfaces	3/8" closed steel eyebolt			
Kinetic Energy Upon Landing (ft-lb)	Section 1	Section 2	Section 3	Section 4
	56		19	50

Recovery System Properties	
Electronics/Ejection	
Altimeter(s) Make/Model	PerfectFlite STRATOLOGGER
Redundancy Plan	2nd PefectFlite STRATOLOGGER
Pad Stay Time (Launch Configuration)	2 hours

Recovery System Properties	
Electronics/Ejection	
Rocket Locators (Make, Model)	Garmin Astro 200, DC 20
Transmitting Frequencies	151.82, 151.88, 151.94, 154.57, 154.60 MHZ for GPS 900Mhz – 8 channels for transmitter
Black Powder Mass Drogue Parachute (gram)	2.36 upped to 3
Black Powder Mass Main Parachute (gram)	3.15 upped to 4

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Payload/Science	
Succinct Overview of Payload/Science Experiment	SMD atmospheric measuring and photography Power Management system
Identify Major Components	Nose cone, main parachute bay, ebay, drogue parachute bay, science/power management bay, fin can, propulsion system, recovery system
Mass of Payload/Science	6.4 pounds

Test Plan Schedule/Status	
Ejection Charge Test(s)	Test completed -
Sub-scale Test Flights	Complete 11/12/11
Full-scale Test Flights	Completed: 1/28, 2/4, 3/18 Scheduled 4/7

Additional Comments	