

## Milestone Review Flysheet

<b>Institution</b>	Citrus College
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<b>Milestone</b>	CDR
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Vehicle Properties	
Total Length (in)	119.125
Diameter (in)	6.08
Gross Lift Off Weigh (lb)	34.12
Airframe Material	Blue Tube 2.0
Fin Material	10-ply aircraft plywood
Coupler Length (in)	12

Motor Properties	
Motor Designation	L1420R
Max/Average Thrust (lb)	1662/ 1424
Total Impulse (lbf-s)	4616
Mass Before/After Burn	34.12/ 27.95
Liftoff Thrust (lb)	1140
Motor Retention	Commercially Purchased Aerotech

Stability Analysis	
Center of Pressure (in from nose)	93.84
Center of Gravity (in from nose)	73.87
Static Stability Margin	3.33
Static Stability Margin (off launch rail)	5.37
Thrust-to-Weight Ratio	7.97
Rail Size and Length (in)	1515/ 144
Rail Exit Velocity (fps)	77.29

Ascent Analysis	
Maximum Velocity (ft/s)	708.44
Maximum Mach Number	0.63
Maximum Acceleration (ft/s^2)	1167.4
Target Apogee from Simulations (ft)	5280
Stable Velocity (ft/s)	43.99
Distance to Stable Velocity (ft)	4.01

Recovery System Properties				
Drogue Parachute				
Manufacturer/Model	Fruity Chutes/Elliptical Compact Parachute			
Size (in)	24			
Altitude at Deployment (ft)	5209.22			
Velocity at Deployment (ft/s)	54.8			
Terminal Velocity (ft/s)	78.18			
Recovery Harness Material	Tubular Nylon			
Harness Size/Thickness (in)	1			
Recovery Harness Length (ft)	45			
Harness/Airframe Interfaces	Harnesses will be attached to a U-Bolt that is secured into a bulkhead expoxied into the airframe.			
Kinetic Energy of Each Section (Ft-lbs)	Section 1	Section 2	Section 3	Section 4
	1350.75	643.75	1260.71	N/A

Recovery System Properties				
Main Parachute				
Manufacturer/Model	Fruity Chutes/Iris Ultra Compact Parachute			
Size (in)	120			
Altitude at Deployment (ft)	799.97			
Velocity at Deployment (ft/s)	95.01			
Terminal Velocity (ft/s)	12.92			
Recovery Harness Material	Tubular Nylon			
Harness Size/Thickness (in)	1			
Recovery Harness Length (ft)	35			
Harness/Airframe Interfaces	Harnesses will be attached to a U-Bolt that is secured into a bulkhead expoxied into the airframe.			
Kinetic Energy of Each Section (Ft-lbs)	Section 1	Section 2	Section 3	Section 4
	36.92	17.6	34.46	N/A

Recovery Electronics	
Altimeter(s)/Timer(s) (Make/Model)	Missile Work RRC2+
Redundancy Plan	The main and drogue parachutes will both have redundant black powder charges set to go off 1 second after the primary charges. The redundancy system includes Missile Work RRC2+ altimeters, batteries, ignitors and black powder charges for the main and drogue parachutes.
Pad Stay Time (Launch Configuration)	Upward of 8 hours

Locating Trackers	
Rocket Locators (Make/Model)	TeleGPS
Transmitting Frequencies	434.55MHz
Black Powder Mass Drogue Chute (grams)	2.42
Black Powder Mass Main Chute (grams)	4.34

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Payload	
Payload 1	<p style="text-align: center; margin: 0;">Overview</p> <p>The team has designed and is constructing a container intended to protect one or more fragile samples before, during, and after flight. The container will be able to safely hold a maximum amount of eight separate samples. The main container components are: radiation shielding, temperature shielding, a polycarbonate outer shell and inner chamber, a liquid sample container, and an inner sample rack with compartments covered in silicone sponges. The main</p>
Payload 2	<p style="text-align: center; margin: 0;">Overview</p> <p>N/A</p>

Test Plans, Status, and Results	
Ejection Charge Tests	Full-scale: January 27, 2017 (Planned)
Sub-scale Test Flights	12/3/2016 (Completed)
Full-scale Test Flights	February 5, 2017 (Planned)

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Additional Comments	
N/A	