

Milestone Review Flysheet 2017-2018				
Institution	Boy Scout Troop 17		Milestones	PDR
Vehicle Properties				
Total Length (in)	75.1			
Diameter (in)	4.025			
Gross Lift Off Weight (lb.)	19.3			
Airframe Material(s)	Fiber glass			
Foam Material and Thickness (in)	Fiber glass 1/25			
Coupler Length/Shoulder Length(s) (in)	Coupler 8 / Shoulder 4			
Stability Analysis				
Center of Pressure (in from nose)	63.25			
Center of Gravity (in from nose)	52.5			
Static Stability Margin (in-pitch)	2.28			
Static Stability Margin (in-roll axis)	51.96			
Thrust-to-Weight Ratio	6.1 over 8.8 max			
Rail Size/Type and Length (in)	1515/120			
Rail Exit Velocity (ft/s)	67.9			
Recovery System Properties				
Parachute Characteristics				
Manufacturer/Model	Sky Angle Classic			
Size/Diameter (in or ft)	60 inch			
Altitude at Deployment (ft)	700			
Velocity at Deployment (ft/s)	65.9			
Terminal Velocity (ft/s)	59.6			
Recovery Harness Material	Kevlar			
Recovery Harness Size/Thickness (in)	25/125			
Recovery Harness Length (ft)	25			
Harness/Airframe Interfaces	1/4 20 1" u-bolt / 0.188 fiber glass lid / 1/4" oval quick link / 3-3-56 plastic bolt shear pins			
Kinetic Energy of Each Section (ft-lb)	Section 1	Section 2	Section 3	Section 4
	746.4	587.4		
Recovery Electronics				
Altimeter(s)/Timer(s)	Missile Works RRC3 and RRC2			
Redundancy Plan and Backup Deployment Settings	Apogee - RRC3 primary RRC2 backup 1 second after apogee. Main - RRC3 @ 750 feet RRC2 backup @ 550 feet			
Pad Stay Time (Launch Configuration)	4 hours			
Motor Properties				
Motor Brand/Designation	Tobi K527R			
Max/Average Thrust (lb.)	170.5/18.8			
Total Impulse (ft-lb)	449.6			
Mass Before/After Burn (lb.)	4.35/2.24			
Lift Off Thrust (lb.)	170.5			
Motor Retention Method	54mm Axon Push			
Ascent Analysis				
Maximum Velocity (ft/s)	622			
Maximum Mach Number	0.57			
Maximum Acceleration (ft/s ²)	248			
Predicted Apogee (From Sea) (ft)	1214			
Recovery System Properties				
Main Parachute				
Manufacturer/Model	Sky Angle Classic			
Size/Diameter (in or ft)	60 inch			
Altitude at Deployment (ft)	700			
Velocity at Deployment (ft/s)	65.9			
Terminal Velocity (ft/s)	59.6			
Recovery Harness Material	Kevlar			
Recovery Harness Size/Thickness (in)	25/125			
Recovery Harness Length (ft)	25			
Harness/Airframe Interfaces	1/4 20 1" u-bolt / 0.188 fiber glass lid / 1/4" oval quick link / 3-3-56 plastic bolt shear pins			
Kinetic Energy of Each Section (ft-lb)	Section 1	Section 2	Section 3	Section 4
	54.2	37.4	15.6	
Recovery Electronics				
Rocket Locators (Make/Model)	Missile Works - RTx or T3			
Transmitting Frequencies (air vehicle and payload)	***Required by COM***			
Ejection System Energetics (ex. Black Powder)				
Energetics Mass - Drogue Chute (grams)	Primary	1.0		
	Backup	1.5		
Energetics Mass - Main Chute (grams)	Primary	1.5		
	Backup	2.25		
Energetics Masses - Other (grams) - If Applicable	Primary			
	Backup			

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Payload				
Payload 1 (offcut payload)	Overview			
Payload 2 (non scored payload)	Overview			
Test Plans, Status, and Results				
Ejection Charge Tests	Test Plan - Preliminary ejection charge sizes will be determined using a spreadsheet. The goal of the charge testing is to get a clean shear of the shear pins and a clean separation of the sections without fully extending the recovery harness. The ground tests will be conducted at the Battle Park launch site under the control of the RSO/LO. Multiple charge tests will be conducted.			
Sub-scale Test Flights	Sub scale flights will be conducted at the Battle Park launch site. The sub scale flights will verify the altimeters, payload and recovery. Charge testing as per above will be conducted to determine the recovery charge sizes for the sub scale.			
Full-scale Test Flights				
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Additional Comments				