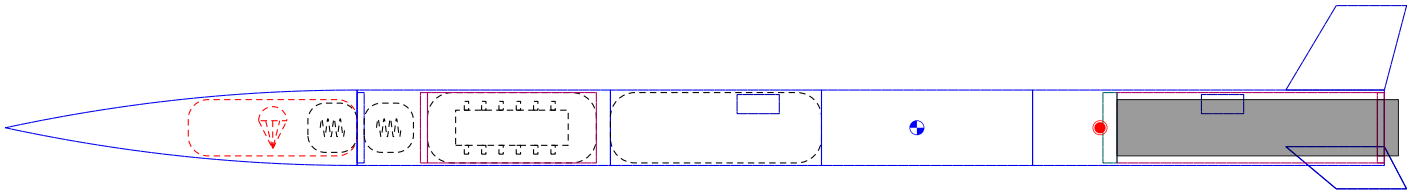
Rocket Design



Rocket

Stages: 1

Mass (with motor): 1295 g

Stability: 2.43 cal

CG: 648 mm

CP: 778 mm

E17-P

Altitude	31.8 m
Flight Time	9.09 s
Time to Apogee	3.39 s
Optimum Delay	1.35 s
Velocity off Pad	8.01 m/s
Max Velocity	18 m/s
Velocity at Deployment	3.62 m/s
Landing Velocity	6.18 m/s

Motor	Avg Thrust	Burn Time	Max Thrust	Total Impulse	Thrust to Wt	Propellant Wt	Size
E17	20.9 N	1.71 s	50.9 N	36.3 Ns	1.79:1	140 g	40/200 mm

G146-P

Altitude	285 m
Flight Time	52 s
Time to Apogee	7.76 s
Optimum Delay	7.09 s
Velocity off Pad	13.5 m/s
Max Velocity	80.8 m/s
Velocity at Deployment	8.87 m/s
Landing Velocity	6.5 m/s

Motor	Avg Thrust	Burn Time	Max Thrust	Total Impulse	Thrust to Wt	Propellant Wt	Size
G146	153 N	0.716 s	203 N	110 Ns	12.12:1	118 g	40/200 mm

G106-P

Altitude	297 m
Flight Time	54.1 s
Time to Apogee	8.06 s
Optimum Delay	7.08 s
Velocity off Pad	11.1 m/s
Max Velocity	81.4 m/s
Velocity at Deployment	11.6 m/s
Landing Velocity	6.53 m/s

Motor	Avg Thrust	Burn Time	Max Thrust	Total Impulse	Thrust to Wt	Propellant Wt	Size
G106	110 N	1.05 s	139 N	115 Ns	8.66:1	128 g	40/200 mm

G108-P

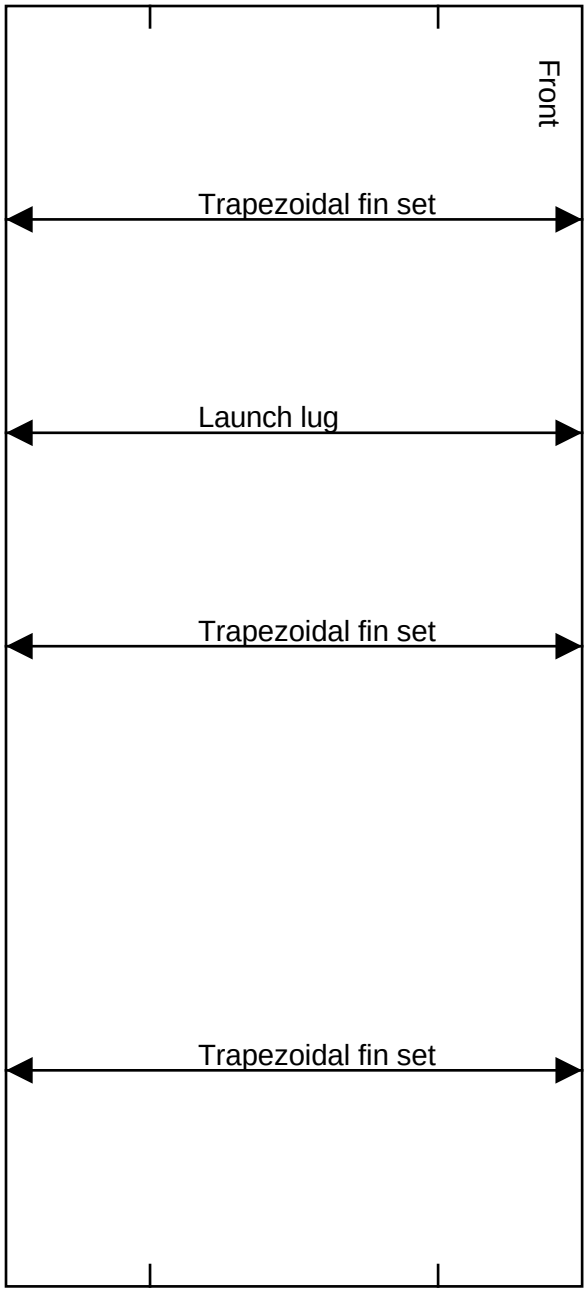
Altitude	278 m
Flight Time	51.2 s
Time to Apogee	7.85 s
Optimum Delay	6.88 s
Velocity off Pad	11.4 m/s
Max Velocity	78.3 m/s
Velocity at Deployment	10.8 m/s
Landing Velocity	6.51 m/s

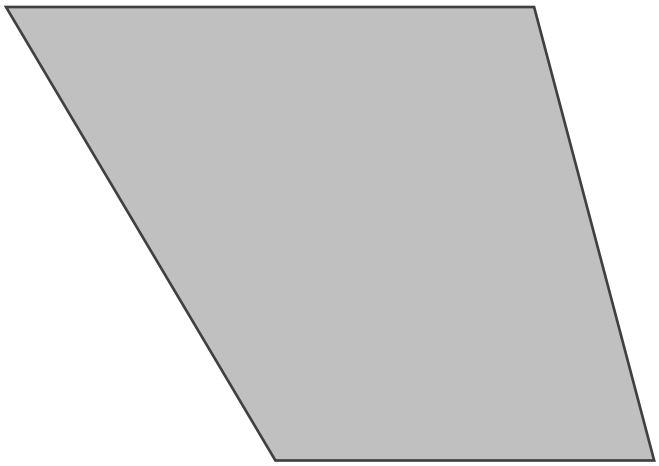
Motor	Avg Thrust	Burn Time	Max Thrust	Total Impulse	Thrust to Wt	Propellant Wt	Size
G108	112 N	0.986 s	139 N	110 Ns	8.81:1	126 g	40/200 mm

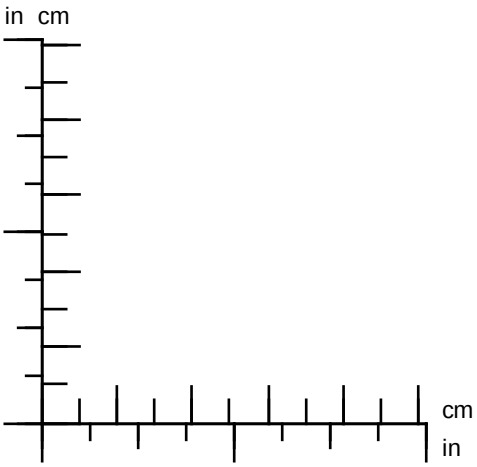
Parts Detail

Sustainer

	Nose cone	PLA (1.3 g/cm³)	Parabolic series	Len: 250 mm	Mass: 64.4 g
	Parachute	Polyethylene (heavy) (40 g/m²)	Dia$_{out}$ 1000 mm	Len: 120 mm	Mass: 34.9 g
	Shroud Lines	Elastic cord (flat 6 mm, 1/4 in) (4.3 g/m)	Lines: 8	Len: 100 mm	
	Shock cord	Elastic cord (flat 12 mm, 1/2 in) (8 g/m)		Len: 100 mm	Mass: 0.8 g
	Body tube	PLA (1.3 g/cm³)	Dia$_{in}$ 50 mm Dia$_{out}$ 53.6 mm	Len: 180 mm	Mass: 68.5 g
	Shock cord	Elastic cord (flat 12 mm, 1/2 in) (8 g/m)		Len: 100 mm	Mass: 0.8 g
	Altimeter		Dia$_{out}$ 50 mm		Mass: 200 g
	Electronics bay	PLA (1.3 g/cm³)	Dia$_{in}$ 48 mm Dia$_{out}$ 50 mm	Len: 120 mm	Mass: 24 g
	Altimeter block	PLA (1.3 g/cm³)	Dia$_{in}$ 0 mm Dia$_{out}$ 50 mm	Len: 5 mm	Mass: 12.8 g
	Extra trube	PLA (1.3 g/cm³)	Dia$_{in}$ 50 mm Dia$_{out}$ 53.6 mm	Len: 150 mm	Mass: 57.1 g
	Tolerance		Dia$_{out}$ 50 mm		Mass: 100 g
	Launch lug	PLA (1.3 g/cm³)	Dia$_{in}$ 10 mm Dia$_{out}$ 13.6 mm	Len: 30 mm	Mass: 2.6 g
	Extra trube	PLA (1.3 g/cm³)	Dia$_{in}$ 50 mm Dia$_{out}$ 53.6 mm	Len: 150 mm	Mass: 57.1 g
	Tail	PLA (1.3 g/cm³)	Dia$_{in}$ 50 mm Dia$_{out}$ 53.6 mm	Len: 250 mm	Mass: 95.2 g
	Trapezoidal fin set (3)	PLA (1.3 g/cm³)	Thick: 3.6 mm		Mass: 50.5 g
	Launch lug	PLA (1.3 g/cm³)	Dia$_{in}$ 10 mm Dia$_{out}$ 13.6 mm	Len: 30 mm	Mass: 2.6 g
	Motor bracket	PLA (1.3 g/cm³)	Dia$_{in}$ 48 mm Dia$_{out}$ 50 mm	Len: 190 mm	Mass: 38 g
	Engine block	PLA (1.3 g/cm³)	Dia$_{in}$ 0 mm Dia$_{out}$ 50 mm	Len: 10 mm	Mass: 25.5 g
	Centering ring	PLA (1.3 g/cm³)	Dia$_{in}$ 40 mm Dia$_{out}$ 50 mm	Len: 5 mm	Mass: 4.59 g


Front
Trapezoidal fin set
Launch lug
Trapezoidal fin set
Trapezoidal fin set

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