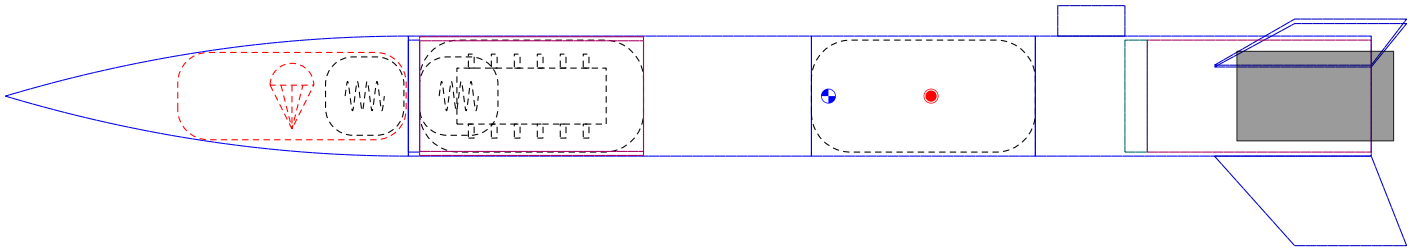
Rocket Design



Rocket

Stages: 1

Mass (with motor): 1240 g

Stability: 0.855 cal

CG: 368 mm

CP: 413 mm

G74W-4

Altitude	274 m
Flight Time	91.5 s
Time to Apogee	7.85 s
Optimum Delay	6.7 s
Velocity off Pad	12.2 m/s
Max Velocity	75.6 m/s
Velocity at Deployment	14.8 m/s
Landing Velocity	3.15 m/s

Motor	Avg Thrust	Burn Time	Max Thrust	Total Impulse	Thrust to Wt	Propellant Wt	Size
G74W	76.2 N	1.12 s	91.2 N	85.3 Ns	7.89:1	39.3 g	29/83 mm

F37-6

Altitude	85.8 m
Flight Time	31 s
Time to Apogee	4.9 s
Optimum Delay	3.37 s
Velocity off Pad	7.75 m/s
Max Velocity	35.6 m/s
Velocity at Deployment	10.4 m/s
Landing Velocity	3.5 m/s

Motor	Avg Thrust	Burn Time	Max Thrust	Total Impulse	Thrust to Wt	Propellant Wt	Size
F37	32.6 N	1.55 s	46.5 N	50.7 Ns	3.31:1	28.2 g	29/99 mm

E15-7

Altitude	33.8 m
Flight Time	14.5 s
Time to Apogee	3.62 s
Optimum Delay	1.05 s
Velocity off Pad	5.65 m/s
Max Velocity	20 m/s
Velocity at Deployment	16.8 m/s
Landing Velocity	3.23 m/s

Motor	Avg Thrust	Burn Time	Max Thrust	Total Impulse	Thrust to Wt	Propellant Wt	Size
E15	15.7 N	2.53 s	28.8 N	39.8 Ns	1.68:1	20.1 g	24/70 mm

B1-P

Altitude	0 m
Flight Time	2.91 s
Time to Apogee	0 s
Optimum Delay	N/A
Velocity off Pad	N/A
Max Velocity	0 m/s
Velocity at Deployment	N/A
Landing Velocity	0 m/s

Motor	Avg Thrust	Burn Time	Max Thrust	Total Impulse	Thrust to Wt	Propellant Wt	Size
B1	1.88 N	2.42 s	3.87 N	4.61 Ns	0.19:1	24 g	24/40 mm

F46-P

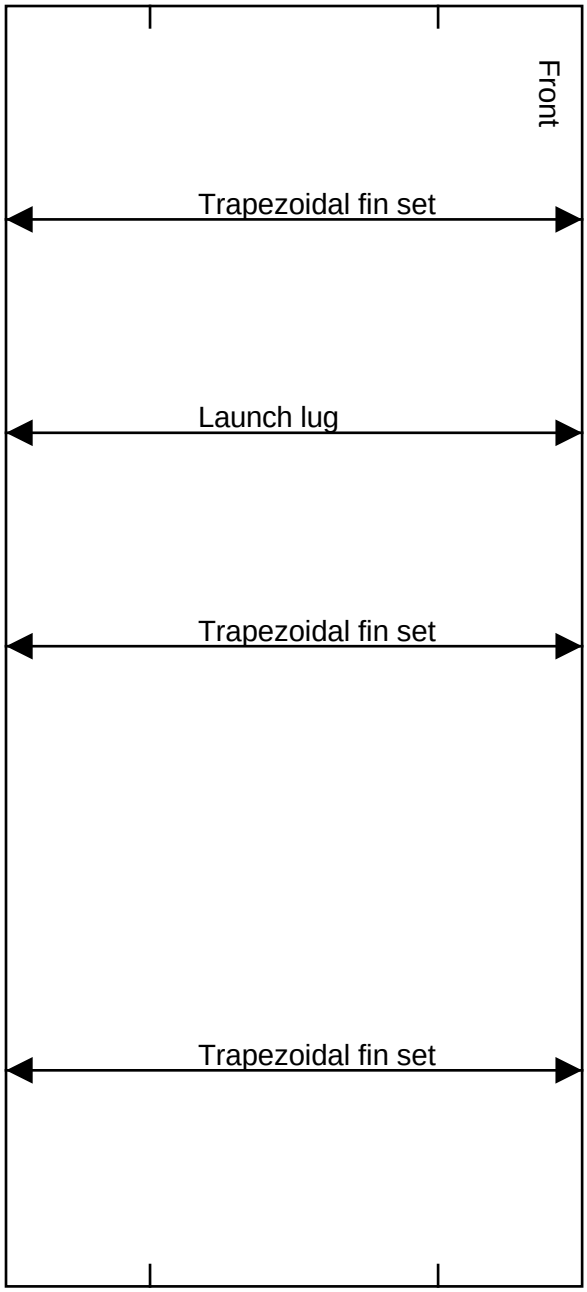
Altitude	125 m
Flight Time	41.7 s
Time to Apogee	5.83 s
Optimum Delay	4.41 s
Velocity off Pad	7.58 m/s
Max Velocity	45.1 m/s
Velocity at Deployment	9.27 m/s
Landing Velocity	3.52 m/s

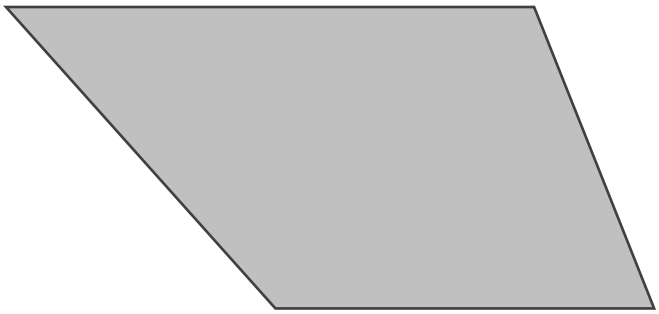
Motor	Avg Thrust	Burn Time	Max Thrust	Total Impulse	Thrust to Wt	Propellant Wt	Size
F46	47.9 N	1.47 s	52.5 N	70.3 Ns	3.94:1	142 g	40/70 mm

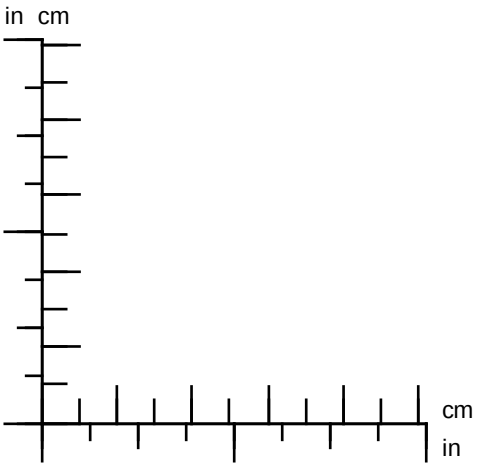
Parts Detail

Sustainer

	Nose cone	PLA (1.3 g/cm³)	Parabolic series	Len: 180 mm	Mass: 47 g
	Parachute	Ripstop nylon (67 g/m²)	Dia_{out} 1782 mm	Len: 102 mm	Mass: 174 g
	Shroud Lines	Elastic cord (flat 6 mm, 1/4 in) (4.3 g/m)	Lines: 8	Len: 200 mm	
	Shock cord	Tubular nylon (25 mm, 1 in) (29 g/m)		Len: 200 mm	Mass: 5.8 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	Tubular nylon (25 mm, 1 in) (29 g/m)		Len: 200 mm	Mass: 5.8 g
	Altimeter		Dia_{out} 50 mm		Mass: 300 g
	Electronics bay	Cardboard (0.68 g/cm³)	Dia_{in} 49.4 mm Dia_{out} 53 mm	Len: 100 mm	Mass: 19.7 g
	Extra trube	PLA (1.3 g/cm³)	Dia_{in} 50 mm Dia_{out} 53.6 mm	Len: 100 mm	Mass: 38.1 g
	Tolerance		Dia_{out} 50 mm		Mass: 100 g
	Tail	PLA (1.3 g/cm³)	Dia_{in} 50 mm Dia_{out} 53.6 mm	Len: 150 mm	Mass: 57.1 g
	Trapezoidal fin set (3)	PLA (1.3 g/cm³)	Thick: 3.6 mm		Mass: 33.7 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: 100 mm	Mass: 20 g
	Engine block	PLA (1.3 g/cm³)	Dia_{in} 0 mm Dia_{out} 50 mm	Len: 10 mm	Mass: 25.5 g


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

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