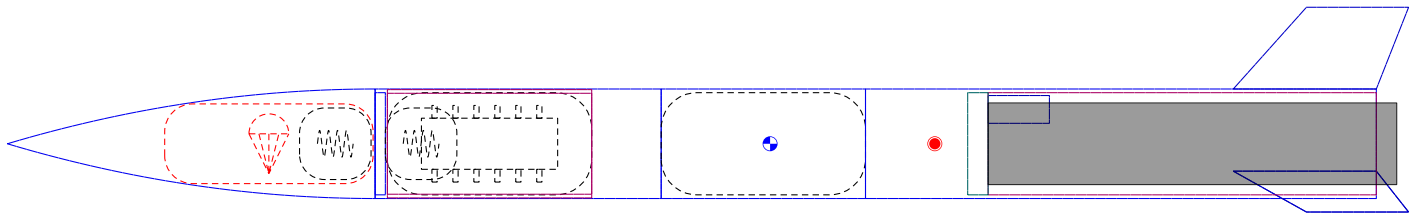


Rocket Design



Rocket
Stages: 1
Mass (with motor): 1465 g
Stability: 1.5 cal
CG: 373 mm
CP: 454 mm

G74W-4

		Motor	Avg Thrust	Burn Time	Max Thrust	Total Impulse	Thrust to Wt	Propellant Wt	Size
Altitude	193 m	G74W	76.2 N	1.12 s	91.2 N	85.3 Ns	6.47:1	39.3 g	29/83 mm
Flight Time	60.1 s								
Time to Apogee	6.74 s								
Optimum Delay	5.64 s								
Velocity off Pad	11 m/s								
Max Velocity	60.3 m/s								
Velocity at Deployment	12.2 m/s								
Landing Velocity	3.87 m/s								

F37-6

		Motor	Avg Thrust	Burn Time	Max Thrust	Total Impulse	Thrust to Wt	Propellant Wt	Size
Altitude	55.2 m	F37	32.6 N	1.55 s	46.5 N	50.7 Ns	2.72:1	28.2 g	29/99 mm
Flight Time	19.5 s								
Time to Apogee	4.11 s								
Optimum Delay	2.58 s								
Velocity off Pad	6.81 m/s								
Max Velocity	26.9 m/s								
Velocity at Deployment	7.92 m/s								
Landing Velocity	3.82 m/s								

E15-7

Altitude	19.1 m	Motor	Avg Thrust	Burn Time	Max Thrust	Total Impulse	Thrust to Wt	Propellant Wt	Size
Flight Time	8.88 s	E15	15.7 N	2.53 s	28.8 N	39.8 Ns	1.37:1	20.1 g	24/70 mm
Time to Apogee	3 s								
Optimum Delay	0.4 s								
Velocity off Pad	4.58 m/s								
Max Velocity	16 m/s								
Velocity at Deployment	12.2 m/s								
Landing Velocity	3.67 m/s								

B1-P

Altitude	0 m	Motor	Avg Thrust	Burn Time	Max Thrust	Total Impulse	Thrust to Wt	Propellant Wt	Size
Flight Time	2.91 s	B1	1.88 N	2.42 s	3.87 N	4.61 Ns	0.16:1	24 g	24/40 mm
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								

F46-P

Altitude	86.4 m	Motor	Avg Thrust	Burn Time	Max Thrust	Total Impulse	Thrust to Wt	Propellant Wt	Size
Flight Time	27.7 s	F46	47.9 N	1.47 s	52.5 N	70.3 Ns	3.36:1	142 g	40/70 mm
Time to Apogee	5.01 s								
Optimum Delay	3.55 s								
Velocity off Pad	6.71 m/s								
Max Velocity	36.1 m/s								
Velocity at Deployment	7.91 m/s								
Landing Velocity	4.05 m/s								

F87-P

Altitude	82 m	Motor	Avg Thrust	Burn Time	Max Thrust	Total Impulse	Thrust to Wt	Propellant Wt	Size
Flight Time	26 s	F87	91.9 N	0.686 s	119 N	63.1 Ns	6.40:1	130 g	40/200 mm
Time to Apogee	4.46 s								
Optimum Delay	3.85 s								
Velocity off Pad	9.94 m/s								
Max Velocity	38 m/s								
Velocity at Deployment	5 m/s								
Landing Velocity	3.78 m/s								

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: 140 mm

Mass: 53.3 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 tube

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: 276 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: 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: 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

