Some Hints for Open Rocket Change Units

ponent name: No	se cone	Select preset
	Ceneral Shoulder Override Appe	arance Comment
Nose cone shape: Shape parameter:	Ogive C An ogive no circle. The to ogive, which values less t	se cone has a profile that is a segment of a shape parameter value 1 produces a tangent has a smooth transition to the body tube, han 1 produce secant ogives .
Nose cone length:	15 • cm	
Base diameter:	5 0 mm Compon	ent material:
	Autom m Balsa	(0.17 g/cm³) 😒
Wall thickness:	0.2 0 in Compon	ent finish:
	Filled ft Regul	ar paint (60 µm) 🔅 Set for all

Override mass of a component

0	Nose cone co	nfiguration		
Component name: Nose cone			Select preset	6
General Sh	oulder Override	Appearance Con	nment	
Override the mass or center of grav	ity of the Nose co	ne:		
✓ Override mass:	20	≎ g		-
Override center of gravity:	0	🔶 cm		-
Override mass and CG of all sub The overridden mass does not include The center of gravity is measured from	ocomponents motors. the front end of the	nose cone.		
component mass: 5.1 g (overridden to 20 g)			Clo	se

Override mass and CG of entire stage (for after you've assembled and completed your rocket, and measured the mass and CG.

Override	Comment						
Override the mass or center of gravity of the Stage:							
✓ Override mass: 334 ♀ g							
✓ Override center of gravity:	48.3 🗘 cm						
\checkmark Override mass and CG of a	ll subcomponents						
The overridden mass does not in The center of gravity is measured	lude motors. from the front end of the stage.						

Creating Configuration ->New Configuration ->Select Motor



->Show Details

	Filter Motors	C Show Dec		
Total impulse:	62.1 Ns	(55% F)		
Avg. thrust:	73.3 N			
Max. thrust:	86.1 N			
Burn time:	0.846 s			
Launch mass:	80 g			
Empty mass:	50 g			
Data points:	33			
00 -	Thrus	t curve:		
80				Ş
70			\	
/0]				
60 -				
60 - 50 - 40 -				
60 - 50 - 40 - 30 -				
60 - 50 - 40 - 30 - 20 -				

If your desired motor isn't there, go to Preferences/General and follow the instructions in the box. Don't forget you have to quit and restart to have the new motors appear.

O Preferences		
Ceneral Design Simulation Launch	Units Materials Graphics	
Interface language	System default	0
The language will change the next time you start OpenRocket.		
User-defined thrust curves: inment_2_solution/59709c6b-dfb5-4ec9-ab56-66aba4034711_ Add directories, RASP motor files (*.eng), RockSim engine files (*.rse) external thrust curves. Changes will take effect the next time you start O	Aerotech_7-5-18.rse.zip Add or ZIP archives separated by a semicolon (; penRocket.	Reset) to load
Check for software updates at startup	C	heck now
You can find the latest list of AeroTech motors at < <u>ht</u>	tp://www.aerotech-	

<u>rocketry.com/resources.aspx?id=8</u>>. You can find the latest list of CTI motors at <<u>http://www.pro38.com/RASP/CTI_UpdateDec2015.zip</u>>

You may also want to download individual motors from Thrustcurve.org.

Set type of recovery In Configurations ->Recovery Click on Ejection Charge or recovery type (under Parachute) Select Deployment



Flight Simulation ->Edit Simulation If using standard atmosphere and launching from Lucerne Valley

•	Edit	simulation	
lation name:		Simulation 1	
configuration:		[F67W-9]	
		Simulation options	
Wind		Launch site	
Average windspeed	d: 2 ♀ ♥ m/s	Latitude:	34.5 🗘 ° N ——
Standard deviation	: 0.2 00 m/s	Longitude:	-117 🗘 ° E 🕒
Turbulence intensi	ty: 10 🗘 % Medium	Altitude:	869 🗘 m ——
Wind direction:	90 ÷ • -	Launch rod	
Atmospheric condition	ons	Length:	48 🗘 in 🔶
🗸 Use Internatio	nal Standard Atmosphere	🗹 Always laund	h directly up-wind or down-wind
Temperature:	15 🗘 °C —	Angle:	0 • • —
Pressure:	3 🗘 mbar	Direction:	90 🗘 • 📕
		Reset to	default Save as default
			Simulate & Plot Cle

No place to enter relative humidity. Details on Pressure and Temperature Correction (TBD)

	Simu	late	&	Pl	0	t.
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	Edit simulation	
Simulation name: Simulation 1	Plan Asra Export data	
Preset plot configurations: Vertical moti	ion vs. time	0
X axis type: Time	C Unit: s The data will be plotted axis type is not time.	in time order even if the X
Y axis types: Altitude \bigcirc Vertical velocity \bigcirc Vertical acceleration \bigcirc New Y axis plot type	Flig Unit: m Axis: Left 3 C Unit: m/s Axis: Auto 3 C Unit: m/s ² Axis: Auto 6 C	ht events: Launch Motor ignition Lift-off Launch rod clearance Motor burnout Ejection charge Apogee Recovery device deployment Ground hit Simulation end
<< Edit		Close Plot

Export Data

	Plot data	Export data
/ariables to export		Field separator
Variable Time Altitude	Unit s m	Field separator string: , ≎
✓ Vertical velocity ✓ Vertical acceleration	m/s m/s²	Comments
Total acceleration	m/s²	 Include simulation description Include field descriptions Include flight events
Select all	Select none	Comment character: #
Exporting 7 variables out	t of 54.	

You can use Export Data to create plots such as Drag Coefficient vs. Velocity, or C_D vs Mach Number, or Mass and Thrust vs. Time Results

Name	Configuration	Velocity off rod	Apogee	Velocity at depl	Optimum delay	Max. velocity	Max. acceleration	Time to apogee	Flight time	Ground hit velo
Simulation 1	[E6 7W_0]	22.1 m/c	612 m	4.87 m/c	0 47 c	140 m/c	$201 m/c^2$	10.2 c	02.0 c	7.36 m/s

It's often easiest to start from an manufacturers RockSim file and edit it to meet your measurements.