



FNL25 RockSim Webinar

FNL Tech Team

Welcome, as you enter the Zoom please type in the chat:
Your Name & Your School

Note: This presentation will be recorded so team members not in attendance may be able to rewatch later





Webinar Overview

- RockSim Overview
 - Assumed you have a basic knowledge of RockSim
- RockSim Resources
 - To give you a basic knowledge of RockSim
- RockSim Rocket Files
 - How to get a RockSim file
- RockSim Load / Verify / Recovery / Mass Object / Motor / Flight data
 - Performance Requirements
- Common Errors





RockSim Overview

- From RockSim

RockSim is an easy-to-use computer program that allows you to design any size rocket then simulate its flight to see how high and fast it will fly! It allows you to virtually test your new model, even before you start buying components and building your design. You'll find out if it will be stable and safe to launch, as well as meet any payload capacity, speed or height criteria you might want. Instead of wasting money on incorrect components and numerous test motors, imagine how much money you'll save by doing all your test flights with just a few clicks of your mouse!



- First Nations Launch requires all teams to acquire and use **RockSim** for design, component and motor selection prior to parts procurements.
 - For consistency, all teams must use the same simulation program – RockSim.



RockSim Resources

- FNL RockSim Resources
 - **Advisor Handbook** – Appendix D-3
 - Goals of Simulations / Simulation Parameters / Procurement
 - Additional Design Files (that are not in the RockSim Library)
 - Additional Motor Files (that are not in the RockSim Library)
 - **Rocket Instructional Videos** – FNL RockSim
 - Download / Install / Temp License (Award Number) / School License
 - User Interface Overview
 - RockSim Rocket Database / Motor Database
 - Parameters

<https://spacegrant.carthage.edu/first-nations-launch/rocket-instructional-videoswebinars/>





RockSim Resources

- Apogee Components Website

- RockSim Overview – Various Topics

- https://www.apogeerockets.com/RockSim/RockSim_Information

- RockSim Video Tutorials – 35 Topics

- https://www.apogeerockets.com/RockSim/RockSim_Video_Tutorials

- Newsletter Articles – Over 100 Topics

- https://www.apogeerockets.com/Peak-of-Flight?pof_list=topics&m=education&#RockSim

- RockSim Program Guide

- <https://www.apogeerockets.com/downloads/PDFs/Rocksims.pdf>





RockSim Resources

ROCKSIM INFORMATION

Information About RockSim

What information will you find on this page?

- [Introduction: Easy to use Software that Saves You Money, Time and Embarrassment](#)
- [Do You Really Need A Program Like RockSim?](#)
- [What Does "Design and Simulation" Software Do?](#)
- [RockSim Speeds Up The "What-If" Design Process](#)
- [Use RockSim To Pick The Best Motors For Your Rockets](#)
- [How to Select Model Rocket Motors Using RockSim](#)
- [How Does RockSim Work?](#)
- [What Else Does RockSim Do For Me?](#)
- [Types of Designs That Are Possible With RockSim?](#)
- [What Makes RockSim Different From Other Programs?](#)
- [Tell Me More About This Thing Called "Dynamic Stability"](#)
- [I Heard That RockSim is Hard To Learn. Is That True?](#)
- [Educational Aspects of RockSim](#)
- [RockSim Also Means "Maximum Compatibility"](#)
- [Who Else Uses RockSim?](#)
- [Is RockSim Expensive?](#)
- [RockSim Articles - Tips & Techniques](#)
- [Actual Customer Comments](#)

ROCKSIM VIDEO TUTORIALS

RockSim Video Tutorials

Video Tutorials for using RockSim:

1. Get Started by opening an existing design & run a simple simulation
[YouTube Video](#)
2. Flight Profile: See what the flight will look like
[YouTube Video](#)
3. Flight Profile Preferences: What extra information can be gleaned from the flight profile?
[YouTube Video](#)
4. Customize the units, and change the 2D rocket drawing to your specifications
[YouTube Video](#)
5. Zooming in on the 2D view. Changing the simulation summary columns
[YouTube Video](#)
6. Customize the 3D view - Part 1. Orienting the rocket, and zooming in and out.
[YouTube Video](#)
7. Customize the 3D view - Part 2. Modifying preferences. Adding lights, changing the resolution.
[YouTube Video](#)
8. Modifying existing rocket designs. Changing the number of stages, and using the slider bars
[YouTube Video](#)
9. Create a new rocket design #1
[YouTube Video](#)
10. Create a new rocket design #2
[Quicktime Movie](#) | [YouTube Video](#)
11. Create a new rocket design #3
[Quicktime Movie](#) | [YouTube Video](#)
12. Create Custom Fins
[YouTube Video](#)



TARC Tutorials Using RockSim:

TARC Tutorial 1:

- How to create a complex nose cone, like an egg capsule in RockSim. (5 min, 23 sec. 14.7 Mb)
[YouTube Video](#) | [Quicktime Movie](#)

TARC Tutorial 2:

- Make an inverted cone shape rocket that is useful for eggglifters. (7 min, 21 sec. 20.8 Mb)
[YouTube Video](#) | [Quicktime Movie](#)

TARC Tutorial 3: (NEW - 9-15-09)

- Setting up the situation where the nose cone returns separate from the fin portion of the rocket. (6 min, 15 sec., 15.9 Mb)
[YouTube Video](#) | [Quicktime Movie](#)

TARC Tutorial 4:

- Selecting the right size parachute, and finding the time aloft. (5 min, 53 sec., 24.5 Mb)
[YouTube Video](#) | [Quicktime Movie](#)

TARC Tutorial 5:

- How to add a new parachute to the RockSim database. (5.8 Mb)
[YouTube Video](#) | [Quicktime Movie](#)

TARC Tutorial 6 (2017 TARC COMPETITION):

- How to have the rocket come down in two separate pieces using middle separation.
[YouTube Video](#) | [Download](#) (Right-click, "Save as")



RockSim Rocket File





RockSim Rocket Files

- There are 2 methods to beginning your simulations;
 - (Preferred) Download the basic rocket file, of the kit you selected
 - Researching kits - most manufacturers provide a basic RockSim file
 - If no file, you can search the internet for a basic RockSim file
 - <https://www.rocketreviews.com/rocksim-library.html>
 - Note: this file should be inspected to verify it reflects what you expect
 - Note: this file will likely be very basic, and need improvements
 - Build the kit components from scratch in RockSim
 - This works if you have the components on-hand and can measure dimensions





RockSim Rocket Files

Example of a vendor website – link for the RockSim file highlighted

Buy with **shop Pay**

[More payment options](#)

IRIS4 Instructions

IRIS4 Rocksim

Description

Complexity: Intermediate-Advanced
Diameter: 4"
Height: 77"
Weight: 5.5lbs.
Motor Mount: 54mm with LNR Compatibility
Parachute Size: 50" Ripstop Nylon
Shock Cord Type: NW-20 20' 3/8" Nylon with sewn loops
Shock Cord Mount: SCM-3 Eyebolt
Fin Thickness: 1/4"
Ring Thickness: 1/4"
Instructions: Yes

DESCRIPTION

The 4" IRIS Kit is now including our LDC in ring/fin system, also a new 4:1 nose cone! One of the ADVANCED SERIES of kits, which include factory pre-slotted airframe and through-the-wall fin construction, Add an electronics bay for dual deployment flights. The IRIS



RockSim Rocket Files

Example of RockSim User Library –
link for the RockSim file highlighted

ROCKETREVIEWS Reviews Flight Logs Reference More Sign In

Designs / RockSim

RockSim Library Search

LOC Kit Normal

Type	Optimization	Added
Kit	Normal	2011-03-05
Kit	Normal	2019-05-22
Kit	Normal	2013-10-10
Kit	Normal	2018-09-08
Kit	Normal	2015-01-13

LOC
Giant Leap Rocketry Escape Velocity
LOC/Precision 4" Cyclotron
LOC/Precision 4" V2 Pre-production
LOC/Precision Athena3
LOC/Precision Aura
LOC/Precision Big Nuke
LOC/Precision Bruiser
LOC/Precision Bruiser EXP3
LOC/Precision Cyclotron
LOC/Precision Phantom 438 EXL
LOC/Precision Forte
LOC/Precision Hi-Tech H45 (29mm)
LOC/Precision HyperLOC 1600
LOC/Precision HyperLOC 835

<https://www.rocketreviews.com/rocksim-library.html>

ROCKETREVIEWS Home Reviews Submit Site Info What's New Features Search Sign In

Designs >> Rocksim Library >> [All Rocksim Designs (3212 of 3219)]

yank_4_iris.rkt Rocksim Design File

Contributed by YANK

- Manufacturer: Yank Enterprises

[Download yank_4_iris.rkt](#)

To use the design file above, you need a copy of **Rocksim**, a rocket design and simulation program.

Kit Name: Yank Enterprises - IRIS (4") (Kit)



CG: 54.9184 inches from front
CP: 70.0217 inches from front
Margin: 3.78 Overstable

Parts Breakdown

- 1-2PatriotRedlineEllis.rkt Ogive Nose Cone
- Custom Estes BT 1090 1.0173 inches 25.84 mm 0.7250 inches 18.42 mm 0.9500 inches 24.13 mm 0.9500 inches 24.13 mm 0.2400 inches 6.10 mm 0.0000 inches 0.00 mm 1.5950 inches 40.51 mm 2.5550 inches 64.90 mm 1.8000 inches 45.72 mm 1.5200 Body Tube [Length: 28.00 in]
 - Public Missiles Ltd. PML CT-3.90 Ring
- Custom Estes BT 1090 1.0173 inches 25.84 mm 0.7250 inches 18.42 mm 0.7250 inches 18.42 mm 0.9500 inches 24.13 mm 0.9500 inches 24.13 mm 0.2400 inches 6.10 mm 0.0000 inches 0.00 mm 1.5950 inches 40.51 mm 2.5550 inches 64.90 mm 1.8000 inches 45.72 mm 1.5200 Body Tube [Length: 36.00 in]
 - Custom Estes BT 1090 1.0173 inches 25.84 mm 0.7250 inches 18.42 mm 0.7250 inches 18.42 mm 0.9500 inches 24.13 mm 0.9500 inches 24.13 mm 0.2400 inches 6.10 mm 0.0000 inches 0.00 mm 1.5950 inches 40.51 mm 2.5550 inches 64.90 mm 1.8000 inches 45.72 mm 1.5200 Body Tube [Length: 18.00 in]
 - yank_4_iris.rkt Trapezoid Fin Set
 - Custom Launch Lug
 - Custom Launch Lug
 - Custom Polyethylene LDPE Parachute (50.00 in)
 - Custom Mass Object
 - Custom Ring
 - Custom Ring



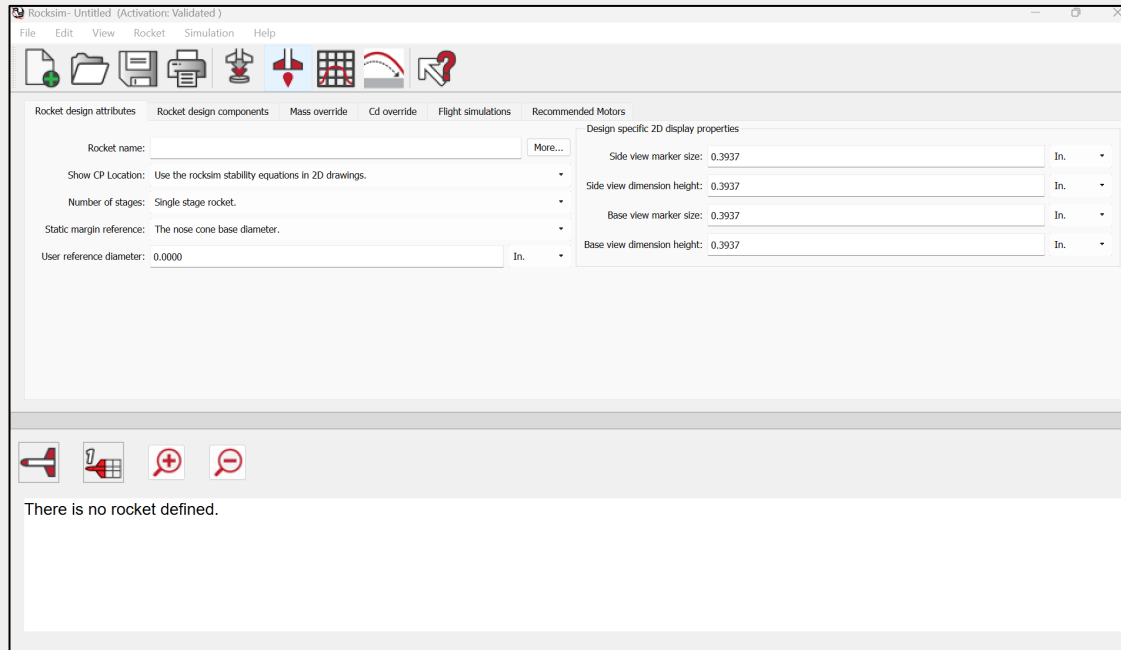
Running Simulations





RockSim Rockets – Load File

- You have your .rkt file -> Open RockSim -> Load the File





RockSim Rockets – Load File

- You have your .rkt file -> Open RockSim -> Load the File

The screenshot shows the RockSim software interface. The 'File' menu is open, and the 'Open ...' option is highlighted with a red box. Below the main interface, a file selection dialog titled 'Select a design file to open.' is shown. The dialog displays a list of folders in the 'Rocketry > Rocksim Files > Designs' path. A red box highlights the following folders:

Name	Date modified	Type	Size
Apogee	1/9/2023 5:51 PM	File folder	
Apogee Avion	1/9/2023 5:51 PM	File folder	
Apogee Diamondback	1/9/2023 5:51 PM	File folder	
Cosmodrome	1/9/2023 5:51 PM	File folder	
Dr. Zooch	1/9/2023 5:51 PM	File folder	
DynaStar Mid-Power	1/9/2023 5:52 PM	File folder	
Estes	1/9/2023 5:52 PM	File folder	
FNL11	1/9/2023 5:52 PM	File folder	
Hawks Hobby	1/9/2023 5:52 PM	File folder	

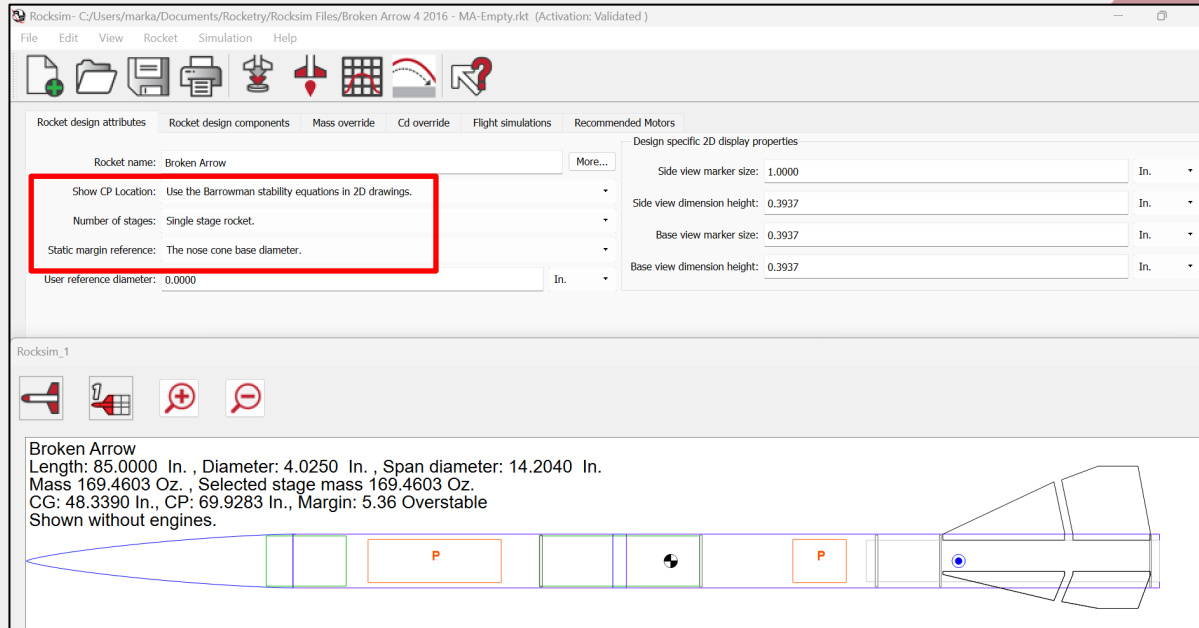
At the bottom of the dialog, the 'File name' field is empty, and the file type is set to 'Rocksim designs (*.rkt *.RKT)'. The 'Open' button is highlighted.

File -> Open -> Opens RockSim Design Database
(or navigate to where you saved your .rkt file)



RockSim Rockets – Load File

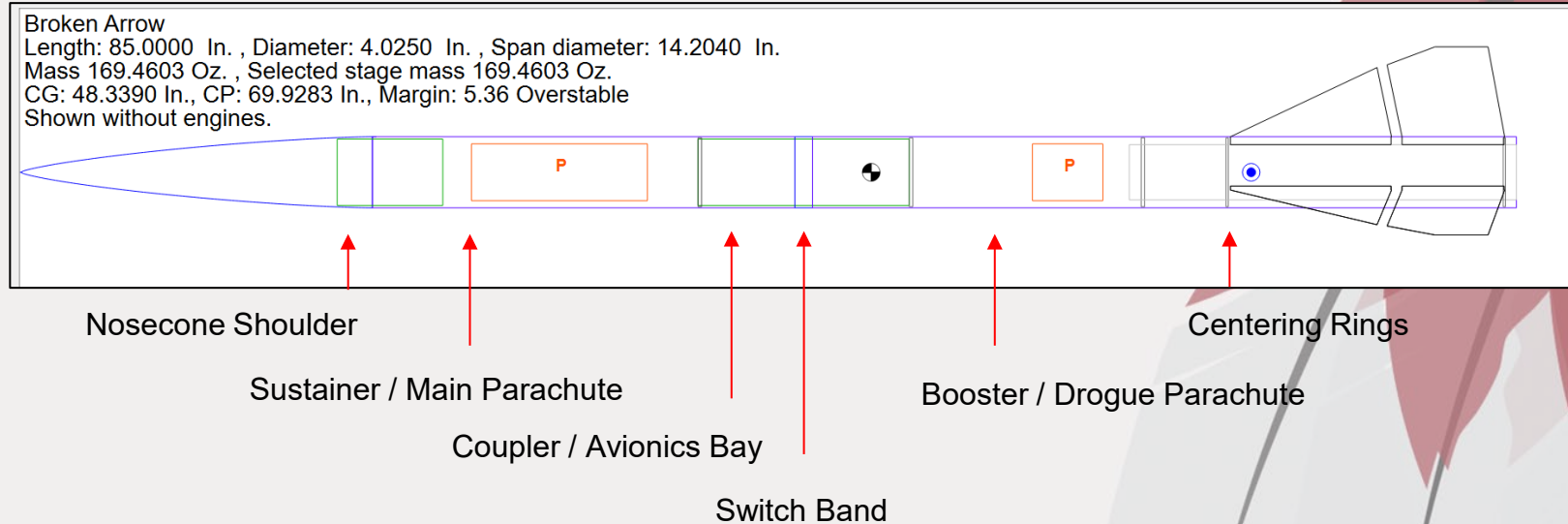
- You have your .rkt file -> Open RockSim -> Load the File





RockSim Rockets - Verify

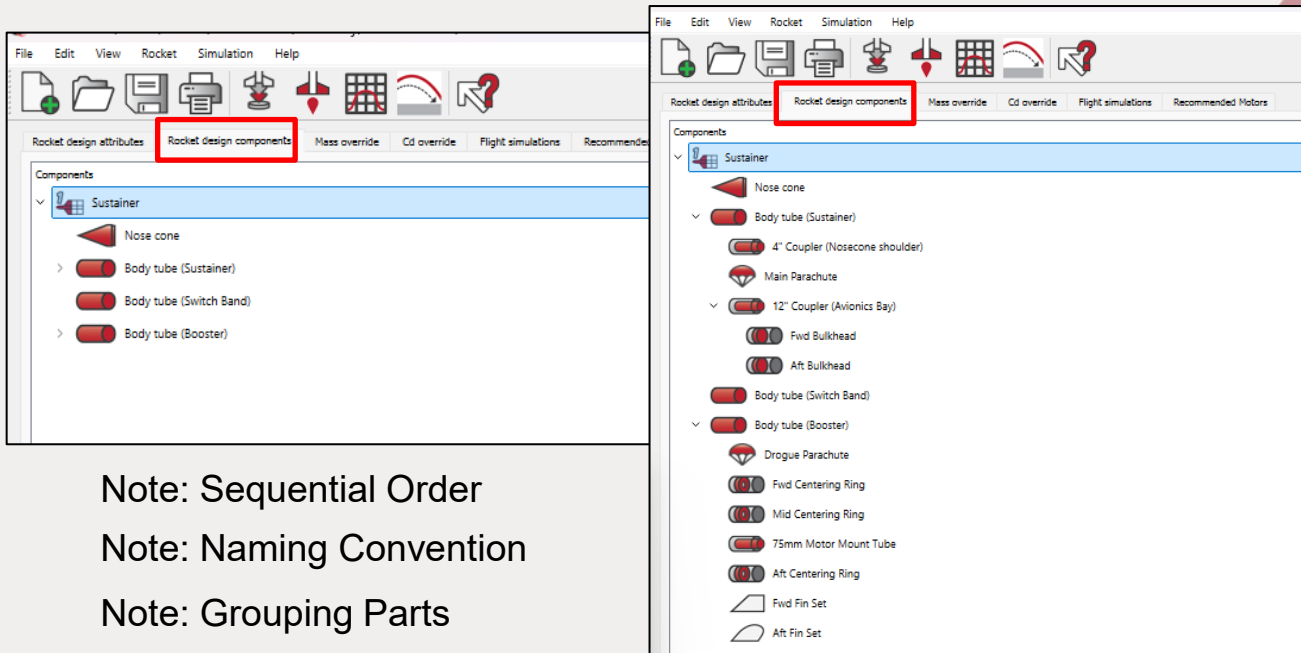
- Verify the loaded Rocket (file) accurately represents what you expect





RockSim Rockets - Verify

- Verify the loaded Rocket (file) accurately represents what you expect



Note: Sequential Order

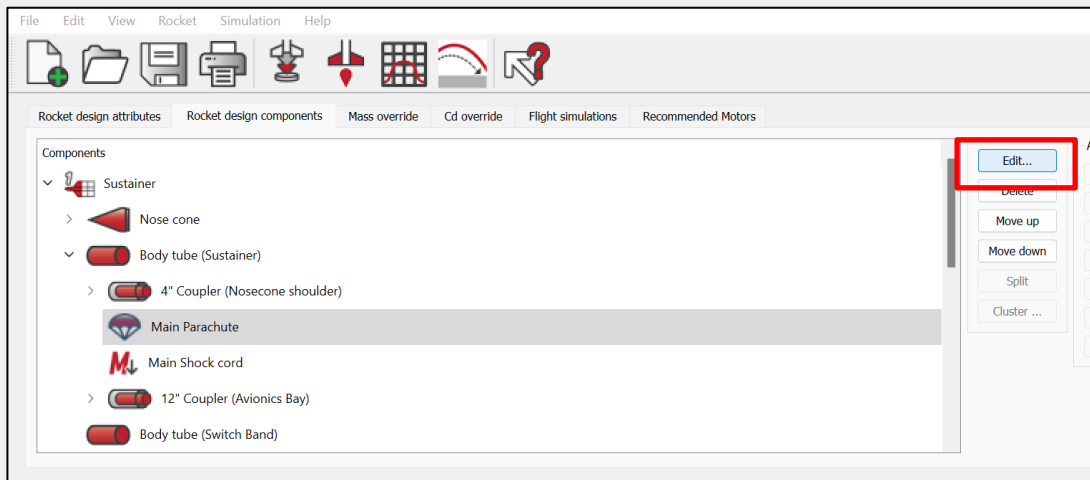
Note: Naming Convention

Note: Grouping Parts



RockSim Rockets - Recovery

- You will need to replace the existing Parachutes in the model
 - Your Parachute selections will need to satisfy the descent Requirements
 - You need two Parachutes (a Drogue and a Main) – example shows Main only





RockSim Rockets - Recovery

- You will need to replace the existing Parachutes in the model
 - Your Parachute selections will need to satisfy the descent Requirements

Rate
Exceeds
Requirements

The 'General' tab of the 'RockSim - parachute' dialog box. The 'Name' is 'Main Parachute'. 'Shape' is 'Round'. 'Outer Dia' is 60.0000. 'Spill hole Dia' is 0.0000. 'Cd' is 0.750. 'Location' is 5.6250. 'Descent rate' is 26.0939 ft/s. 'Calculated component mass' is 4.5288 Oz. The 'Broken Arrow' section shows 'Length: 85.0000 In.', 'Diameter: 4.0250 In.', 'Span diameter: 14.2040 In.', and 'Mass 190.6662 Oz.'. The 'Selected stage mass' is 190.6662 Oz.

The 'Database' tab of the 'RockSim - parachute' dialog box. The 'Manufacturer' is 'Public Missiles'. The 'Part number' is 'PAR-60R'. The 'Part description' is '60 in. nylon'. The 'Choose from database...' button is highlighted. Below is a table of available parachutes.

Mfg.	Part No.	Description
43 Estes	82426-30	24 in. nylon
44 Estes	302260	18 in. nylon
45 Estes	12 in.	12 in. plastic
46 LOC Precision	LP-78	78 In. 16 lines
47 LOC Precision	LP-50	50 In. 16 lines
48 LOC Precision	LP-14	14 In. 6 lines
49 LOC Precision	LP-18	18 In. 8 lines
50 LOC Precision	LP-28	28 In. 8 lines
51 LOC Precision	LP-86	86 In. 20 lines
52 LOC Precision	LP-36	36 In. 10 lines
53 LOC Precision	LP-58	58 In. 16 lines

Buttons: OK, Cancel

So, select a larger parachute – use the RockSim Database



RockSim Rockets - Recovery

- You will need to replace the existing Parachutes in the model
 - Your Parachute selections will need to satisfy the descent Requirements

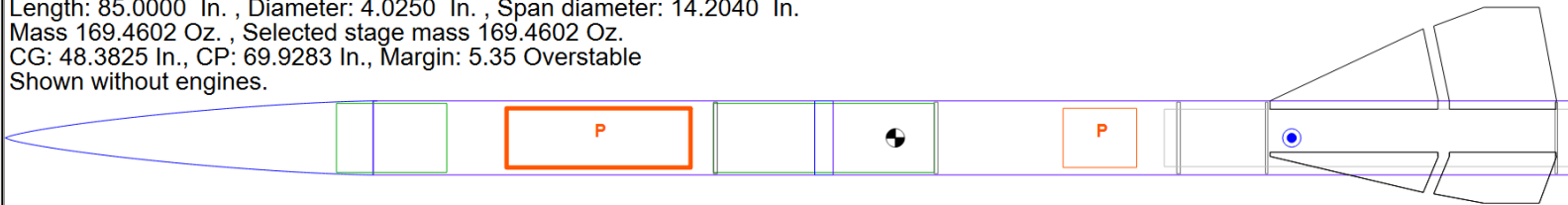
Broken Arrow

Length: 85.0000 In. , Diameter: 4.0250 In. , Span diameter: 14.2040 In.

Mass 169.4602 Oz. , Selected stage mass 169.4602 Oz.

CG: 48.3825 In., CP: 69.9283 In., Margin: 5.35 Overstable

Shown without engines.



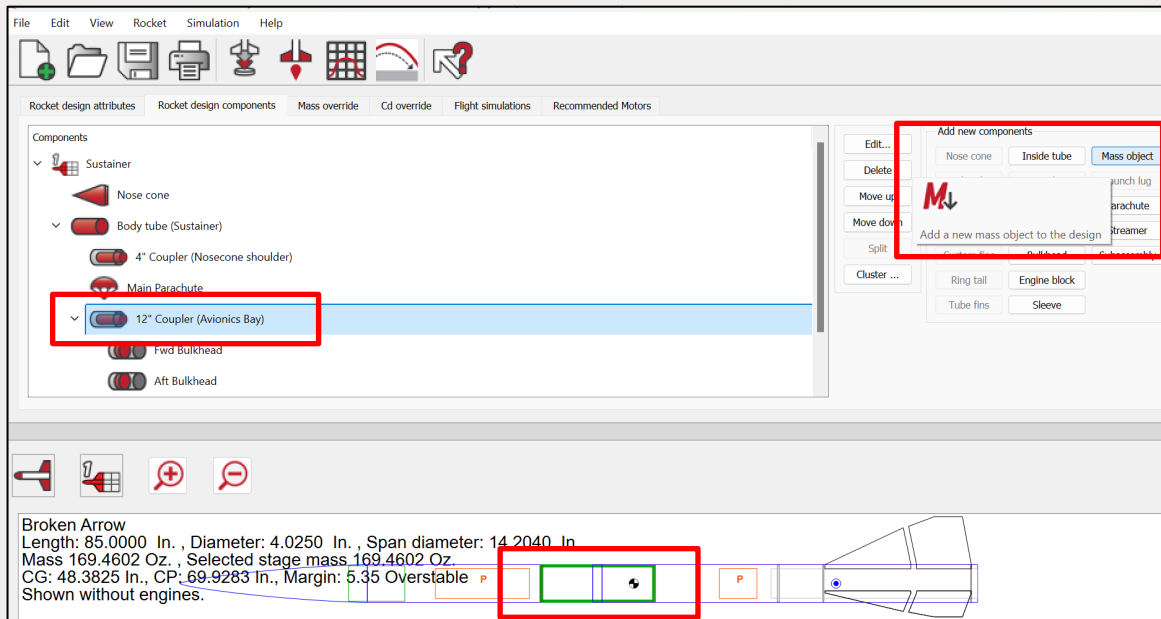
Note: The rectangle represents the volume that your parachute selection is expected to occupy. Ensure your parachute will fit in the airframe! Check the specs!

Note: The position of the parachutes are aft in their respective tubes— this is where they will sit when the rocket is vertical – this affects the CG, so position accordingly!



RockSim Rockets – Challenge ‘Mass Object’

- You will need to add a Mass Object for the Challenge Electronics





RockSim Rockets – Challenge ‘Mass Object’

- You will need to add a Mass Object for the Challenge Electronics

Rocksim - mass object

General Database Color Texture

Name: Mass - Challenge Sensors 1

Classification: General

Mass: 14 Oz.

Location: 3.1250 In.

From the front of the owning part.

☐ Hide

Calculated component mass: 0.0000 Oz. NOTE: Mass override is ON.

Broken Arrow
Length: 85.0000 In., Diameter: 4.0250 In., Span diameter: 14.2040 In.
Mass 183.4602 Oz., Selected stage mass 183.4602 Oz.
CG: 47.8668 In., CP: 69.9283 In., Margin: 5.48 Overstable
Shown without engines.

Rocksim - Select from database

	Mfg.	Part No.	Description
1	Apogee	29611	Small Screw Eye
2	Apogee	29629	Eyebolt - 1/4-2...
3	Apogee	29625	Screw Eye (Lar...
4	Apogee	29620	1/8" Quick Link
5	Apogee	29621	1/4" Quick Link
6	Apogee	29623	"1/4"" Forged E...
7	Apogee	29633	1/4-20 Threade...
8	Apogee	24046	Crimped Engin...
9	AeroPack	24052	24mm Engine ...
10	AeroPack	24051	24mm Aeropac...

☒ Always display this screen when a new component of this type is created.

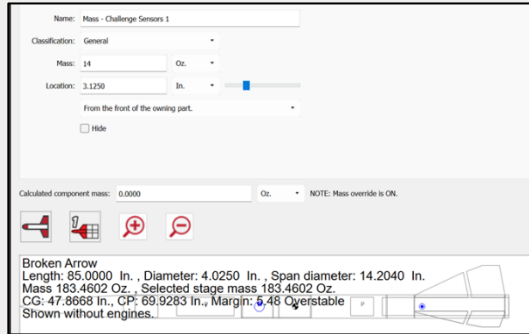
OK Cancel

Database box may pop up – close this, not needed now.



RockSim Rockets – Challenge ‘Mass Object’

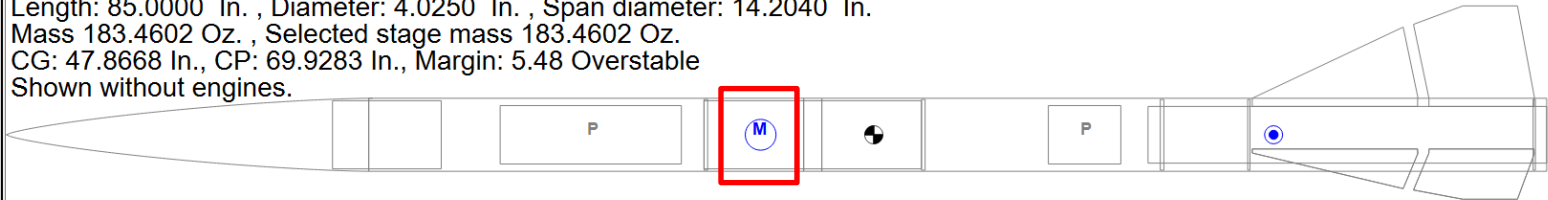
- You will need to add a Mass Object for the Challenge Electronics



Note the part is added as a ‘M’ object, at the location shown.

You will need to repeat this for all your Challenge components.

Broken Arrow
Length: 85.0000 In. , Diameter: 4.0250 In. , Span diameter: 14.2040 In.
Mass 183.4602 Oz. , Selected stage mass 183.4602 Oz.
CG: 47.8668 In., CP: 69.9283 In., Margin: 5.48 Overstable
Shown without engines.



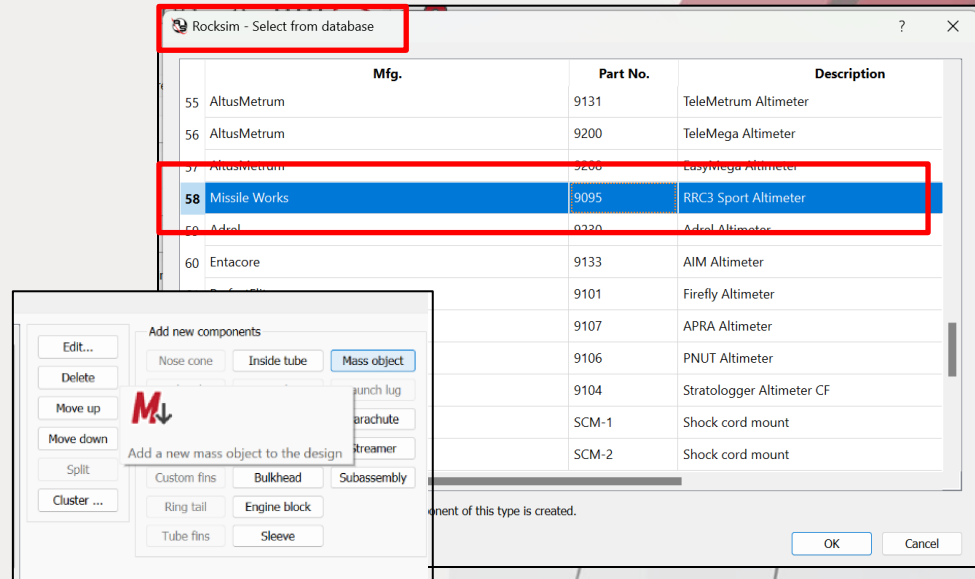


RockSim Rockets – General ‘Mass Object’

- You will also need to add a Mass Object for the General Components.

Add New Component -> Mass Object -> Database dialog box is convenient for adding mass of standard items – altimeters, eyebolts, threaded rods, etc.

You will need to add all these components as you eventually make all component selections.





RockSim Rockets – Prepare For Launch ‘Motor’

- You will Prepare for Launch -> Select / Load a Motor

The screenshot displays the RockSim software interface. On the left, the 'Rocket' menu is open, and the 'Prepare for launch ...' option is highlighted with a red box. The 'Components' list on the left includes: Sustainer, Nose cone, Body tube (5), 4" Coupler, Main Parachute, Main Shock cord, 12" Coupler (Avionics Bay), and Body tube (Switch Band). On the right, the 'Rocksim simulation properties' dialog box is open, with the 'Engine selection' tab selected and highlighted with a red box. The dialog shows a 3D model of a rocket engine and a table of engine specifications.

Stage	Name	Engine Mfg.	Engine code	Ejection delay Sec.	Ignition delay Sec.
76 mm	75mm Motor ...			Plugged	0.00

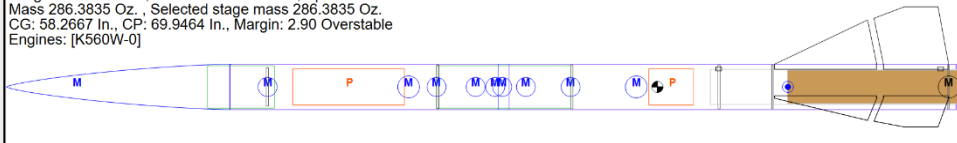
At the bottom of the dialog, there are buttons: 'Choose engine...' (highlighted with a red box), 'Load all', 'Recommend Motors', 'Clear selected', and 'Clear all'.



RockSim Rockets – Prepare For Launch ‘Motor’

- You will need to select / load a Motor
 - Handbook Appendix A-1 has Challenge Motors
 - This year they are in the RockSim Database
 - If Motor not found in Database
 - You can import a motor (see Resources)

Broken Arrow
Length: 85.0000 In., Diameter: 4.0250 In., Span diameter: 14.2040 In.
Mass 286.3835 Oz., Selected stage mass 286.3835 Oz.
CG: 58.2667 In., CP: 69.9464 In., Margin: 2.90 Overstable
Engines: [K560W-0]



You can find complete motor data at – <https://www.thrustcurve.org/>

Rocksim - engine selections

Motor mount: 76.0 mm - K560W-0

Manufacturer filter: Aerotech ☐ Exact match.

Diameter filter: Show only engines that match the mount diameter or are smaller.

Type filter: All

Mfg. name	Engine code	Diameter mm	Length In.	Burn Sec.	Total impulse N-Sec.	Average thrust Newtons
Aerotech	K270W	54.00	22.7953	8.69	2154.870	247.914
Aerotech	K480W	54.00	22.3622	4.80	2294.760	478.075
Aerotech	K535W	54.00	14.0984	2.95	1428.610	483.947
Aerotech	K540M	54.00	15.7874	3.29	1592.753	484.267
Aerotech	K550W	54.00	16.1417	3.50	1594.463	455.561
Aerotech	K695R	54.00	16.1417	2.25	1496.473	665.099
Aerotech	K700W	54.00	22.3622	3.59	2283.680	635.592
Aerotech	K805G	54.00	15.7717	2.40	1730.041	720.850

Ejection delay in seconds: Plugged

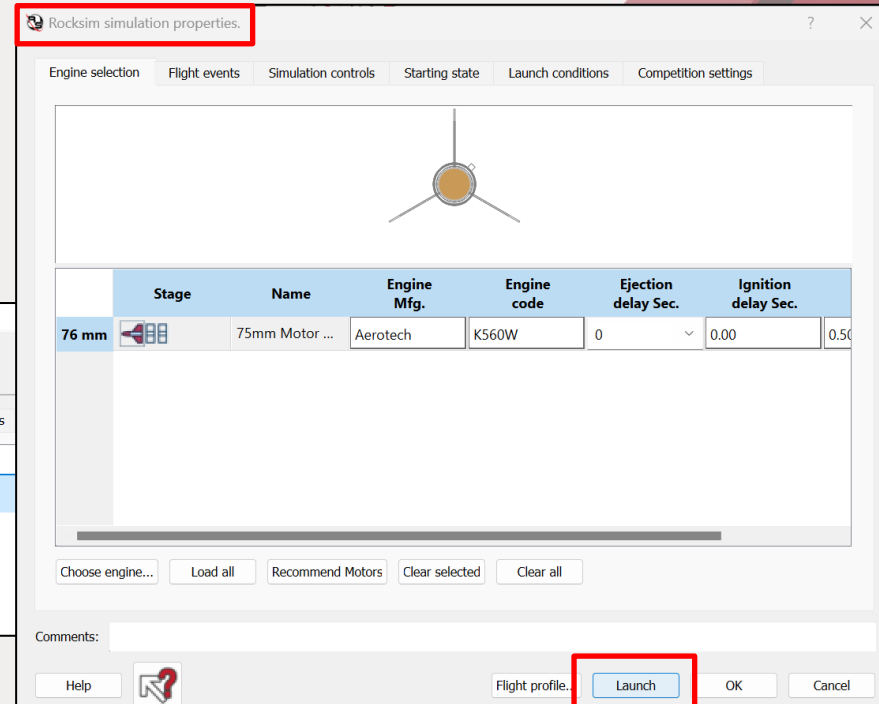
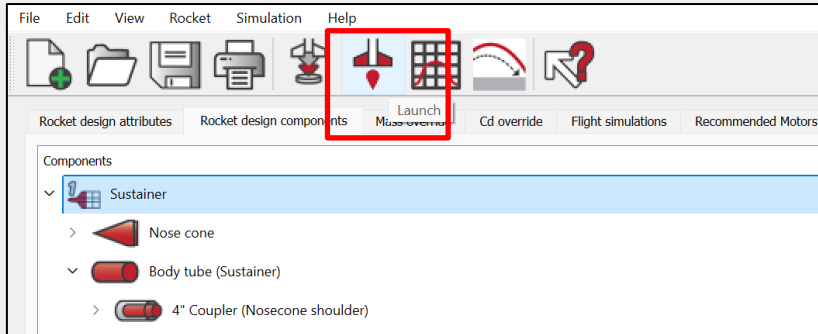
Ignition delay in seconds:

Engine overhang: 0.5000 In.



RockSim Rockets – Launch

- Run the simulations!
 - Multiple ways to run





RockSim Rockets – Flight Data Requirements

- Examine simulation Data – ensure you meet performance Requirements!
 - Max Altitude
 - Static Margin
 - Rail Exit Velocity
 - Thrust to Weight Ratio
 - Descent Rate - Main
 - Descent Rate - Drogue
 - Other FlySheet Data

The screenshot shows the RockSim software interface. The 'Flight simulations' tab is selected and highlighted with a red box. Below the tab bar is a table with 11 columns and 1 row of data. The columns are: Simulation, Results, Engines loaded, Optimal delay, Max. altitude Feet, Max. velocity Feet / Sec, Max. acceleration Gees, Velocity at deployment Feet / Sec, Altitude at launch guide c Feet / Sec, Time to apogee, and Launch static margin. The data row shows values for a simulation with ID 0, using K560W-0 engines, with an optimal delay of 14.75, a maximum altitude of 6804.17 feet, a maximum velocity of 778.15 feet per second, a maximum acceleration of 9.07 gees, a deployment velocity of 48.76 feet per second, an altitude at launch guide of 66.82 feet per second, a time to apogee of 19.71, and a launch static margin of 3.48.










Simulation	Results	Engines loaded	Optimal delay	Max. altitude Feet	Max. velocity Feet / Sec	Max. acceleration Gees	Velocity at deployment Feet / Sec	Altitude at launch guide c Feet / Sec	Time to apogee	Launch static margin
0		[K560W-0]	14.75	6804.17	778.15	9.07	48.76	66.82	19.71	3.48

These columns are selectable to about 20 parameters


RockSim Rockets – Flight Data

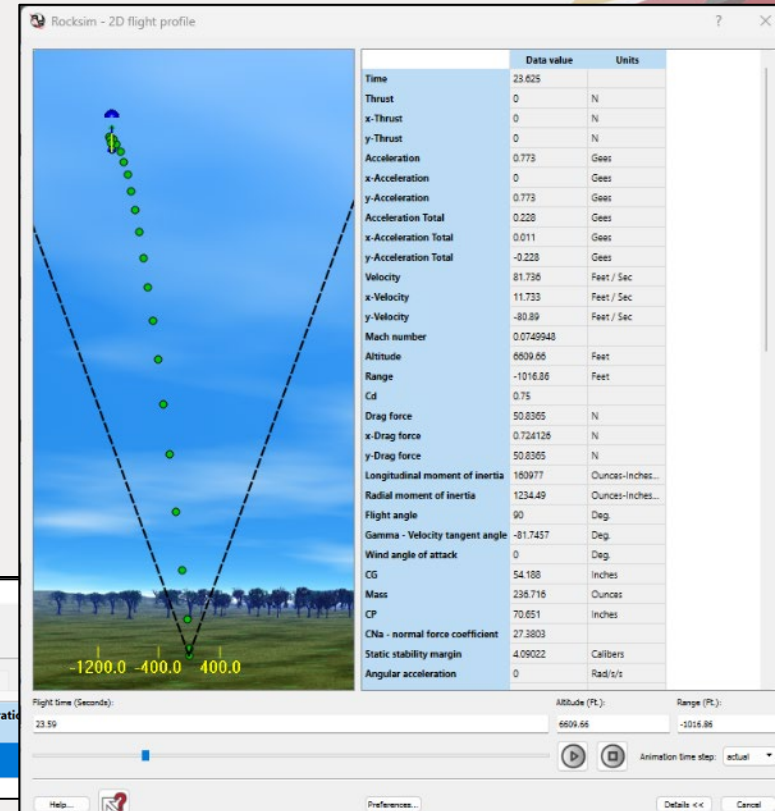
- Flight Profile Data
 - Visual of the simulated flight profile
 - Various data at all points in time of the flight
 - Profile can help ensure parachutes are configured (deploy) properly
 - Profile can help ensure drift is within Requirements

File Edit View Rocket Simulation Help



Rocket design attributes Rocket design components Mass override **CD override** Flight simulations Recommended Motors

Simulation	Results	Engines loaded	Optimal delay	Max. altitude Feet	Max. velocity Feet / Sec	Max. acceleration Gees
0		[K560W-0]	14.75	6804.17	778.15	9.07

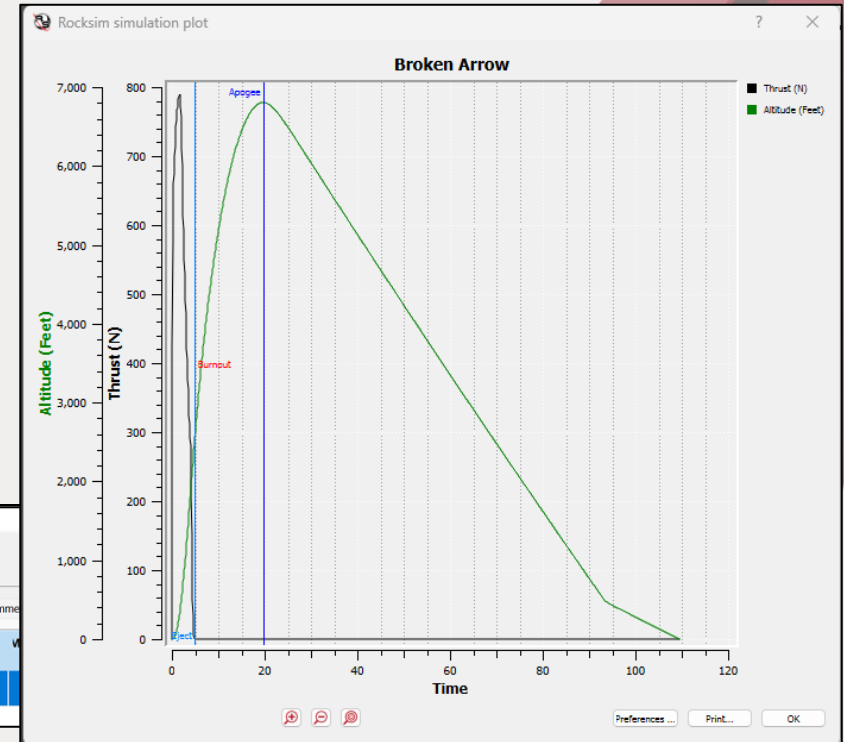




RockSim Rockets – Flight Data

- Plotting Data
 - Useful in Reports
 - Plot any parameter versus time
 - Thrust curve for example
 - Plot single or multiple parameters
 - Can zoom axis for more detail

Simulation	Results	Engines loaded	Optimal delay	Max. altitude Feet	Max. velocity Feet / Sec
0		[KS60W-0]	14.75	6804.17	778.15





Common Errors





RockSim Rockets – Common Errors

- Ensure Vehicle Mass Override is OFF (and do not use)
- Ensure Cd Override is ON (and do not use)
- Ensure all Drag is accounted for (Rail Buttons, Surface Finish)
- Ensure Parachutes are configured to deploy properly
- Ensure Launch Guide length is configured properly
- Ensure all Mass Objects are accounted for





RockSim Rockets – Common Errors

- Ensure Vehicle Mass Override is OFF (and do not use)
 - If adding components (mass) does not change altitude – check this setting

Rocksim- C:/Users/marka/Documents/Rocketry/Rocksim Files/Broken Arrow 4 2016 - MA.rkt (Activation: Validated)

File Edit View Rocket Simulation Help

Mass override

☐ Use the values shown below for all simulations*

Measured mass data

Sustainer:	183.9999	Oz. ▾
Second booster:	0.0000	Oz. ▾
First booster:	0.0000	Oz. ▾

BOX SHOULD BE UNCHECKED

Measured center of gravity (CG) data

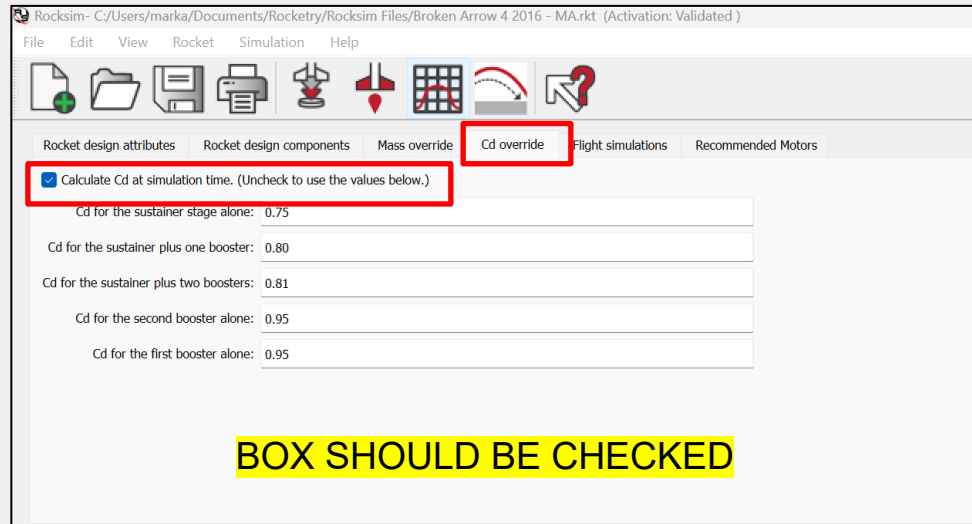
Sustainer:	65.0000	In. ▾
Sustainer + booster:	0.0000	In. ▾
Sustainer + two boosters:	0.0000	In. ▾
Second booster alone:	0.0000	In. ▾
First booster alone:	0.0000	In. ▾

**Mass Override will only calculate correctly if center of gravity data has been entered.*



RockSim Rockets – Common Errors

- Ensure Cd Override is ON (and do not change)
 - If changing (adding) drag does not change altitude, check this setting





RockSim Rockets – Common Errors

- Ensure all Drag is accounted for - Rail Buttons
 - If making drag adjustments does not change altitude, see Cd Override slide

RockSim Fin Set

General Database Radial position TTW Fin mount Mass override Color Texture

Name: Mock Rail Button Material: G10 fiberglass

Fin count and shape: 1 Trapezoidal Thickness: 0.5000

Root chord Len: 0.5000 In. Cross section: Square

Tip chord Len: 0.5000 In. Finish: Polished

Sweep Len: 0.0000 In.

Sweep angle: 0.000 Deg.

Semi span: 0.5000 In.

Location: 38.3750 In.

From the front of the owning part.

Calculated fin set mass: 0.1377 Oz.

Calculated fin mass: 0.1377

Broken Arrow
Length: 85.0000 In., Diameter: 4.0250 In., Span diameter: 14.2040 In.

Span diameter: 14.2040 In.
Mass: 190.6662 Oz.
5.33 Overstable

Add new components

Nose cone Inside tube Mass object

Body tube Pod Launch lug

Transition Centering ring Parachute

Fins Coupler Streamer

Custom fins

Ring tail

Tube fins

Add a trapezoidal or elliptical fin set to the design

New Micro-button New Mini-Button Standard 1010 Railbutton

Any surface protuberance should be modeled

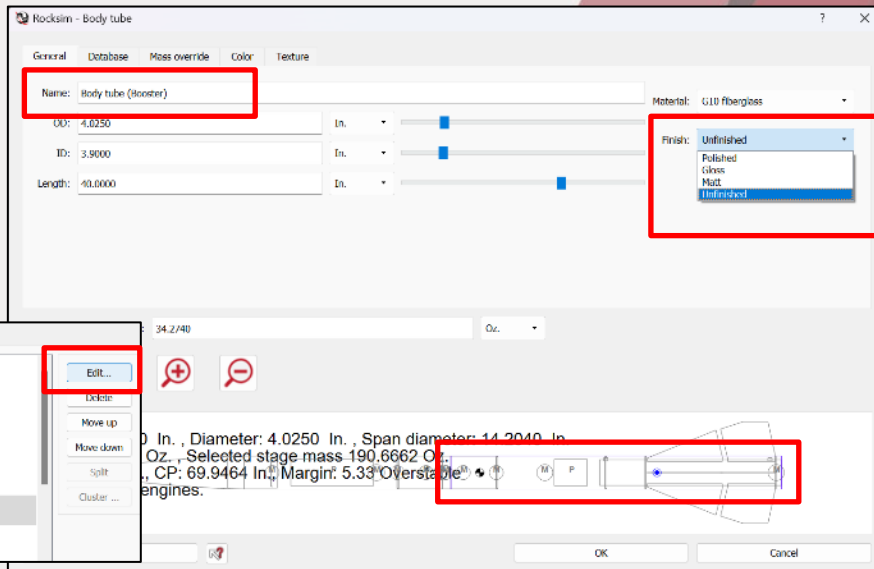


RockSim Rockets – Common Errors

- Ensure all Drag is accounted for - Surface Finish
 - If making drag adjustments does not change altitude, see Cd Override slide

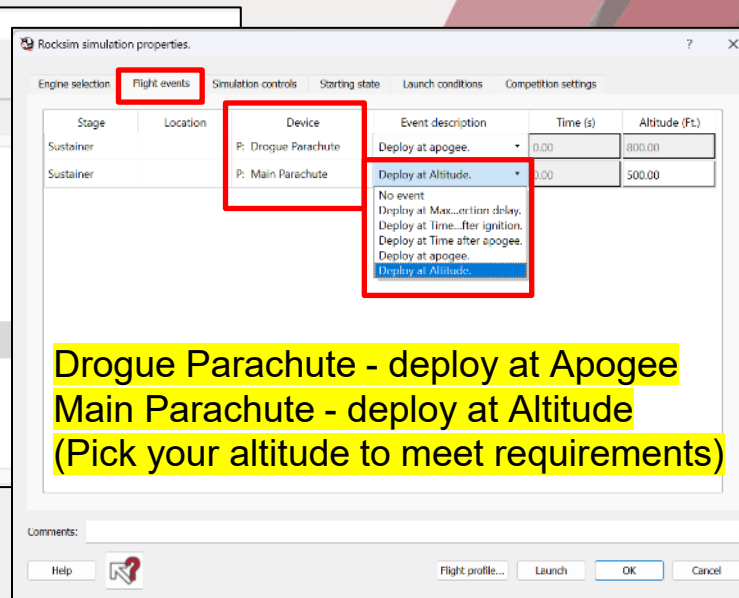
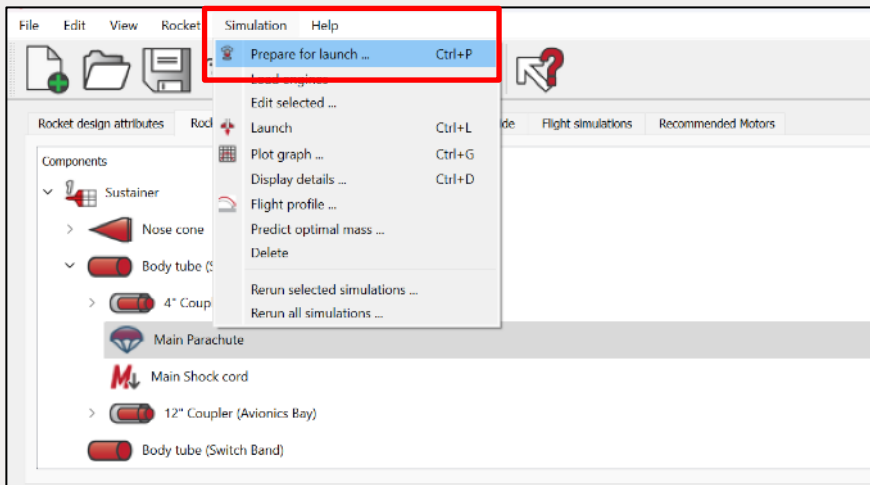
Select the finish that most appropriately represents your rocket.

Adjust the finish to see the effects on altitude – all body tubes, fins, nosecone.



RockSim Rockets – Common Errors

- Ensure Parachutes are configured to deploy properly
 - Improperly configured, they deploy too early (false apogee) or not at all

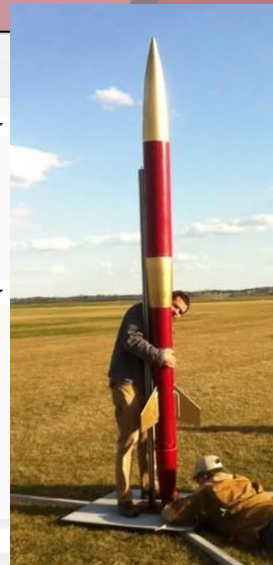
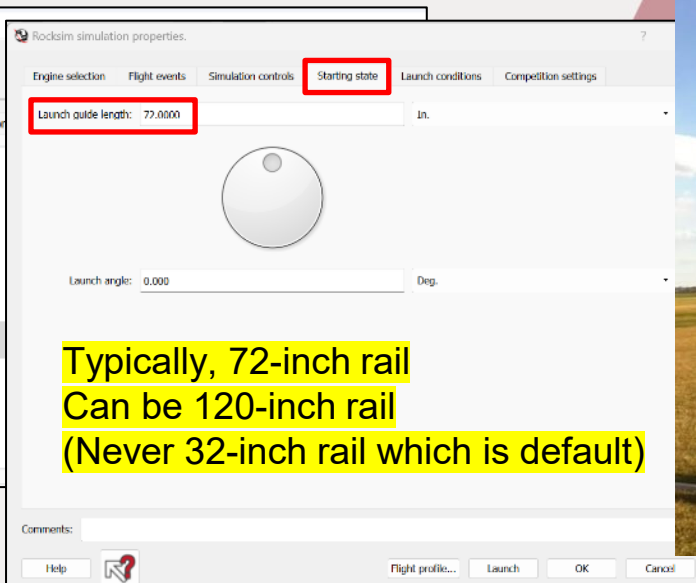
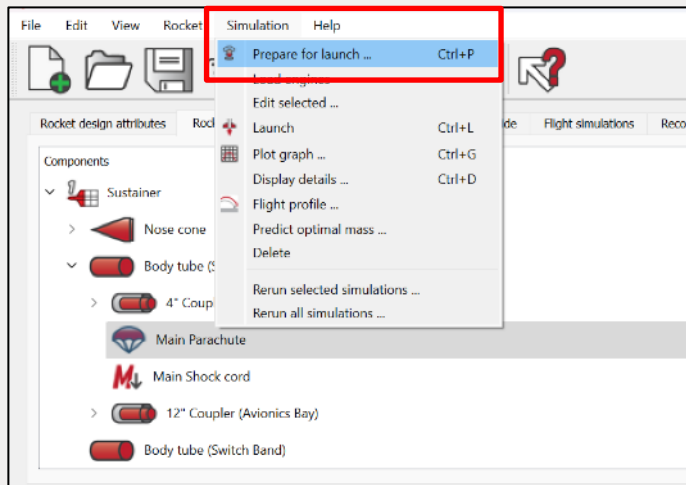


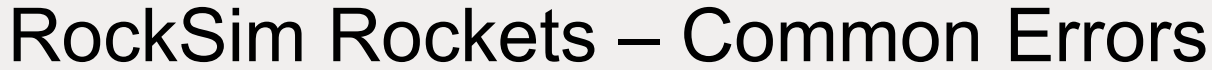
Drogue Parachute - deploy at Apogee
Main Parachute - deploy at Altitude
(Pick your altitude to meet requirements)



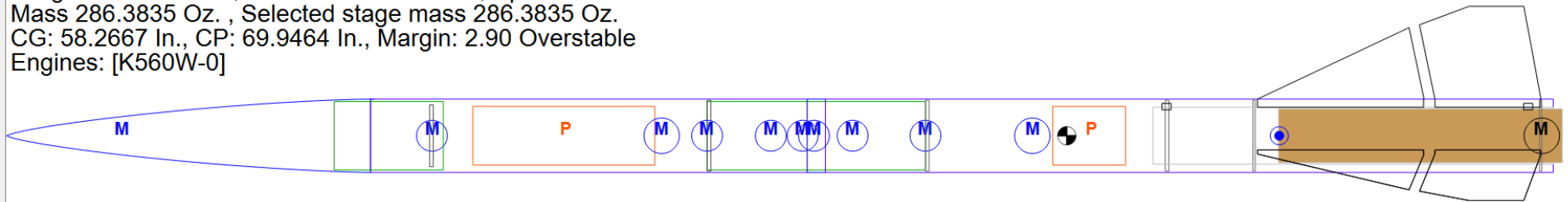
RockSim Rockets – Common Errors

- Ensure Launch Guide length is configured properly
 - If your rail exit velocity (launch guide departure) is too low, check this setting





- | |
|--|
| Broken Arrow
Length: 85.0000 In. , Diameter: 4.0250 In. , Span diameter: 14.2040 In.
Mass 286.3835 Oz. , Selected stage mass 286.3835 Oz.
CG: 58.2667 In., CP: 69.9464 In., Margin: 2.90 Overstable
Engines: [K560W-0] |
|--|





Questions?

