



# [1.8] Ferram Aerospace Research Continued: v0.15.11.3 "Mach" 27/10/19

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By dkavolis, October 31, 2018 in [Add-on Releases](#)

[far](#)[ferram aerospace research](#)[aerodynamics](#)

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**dkavolis**

Rocketry Enthusiast



Members

[+ 158](#)

75 posts

Posted October 31, 2018 (edited)

[Report post](#)

This is an unofficial continuation of Ferram Aerospace Research by [@ferram4](#) updated to latest KSP version. The original thread can be found [here](#).

New source code repository: <https://github.com/dkavolis/Ferram-Aerospace-Research>

All content now licensed under GPL v3.

From the original thread:

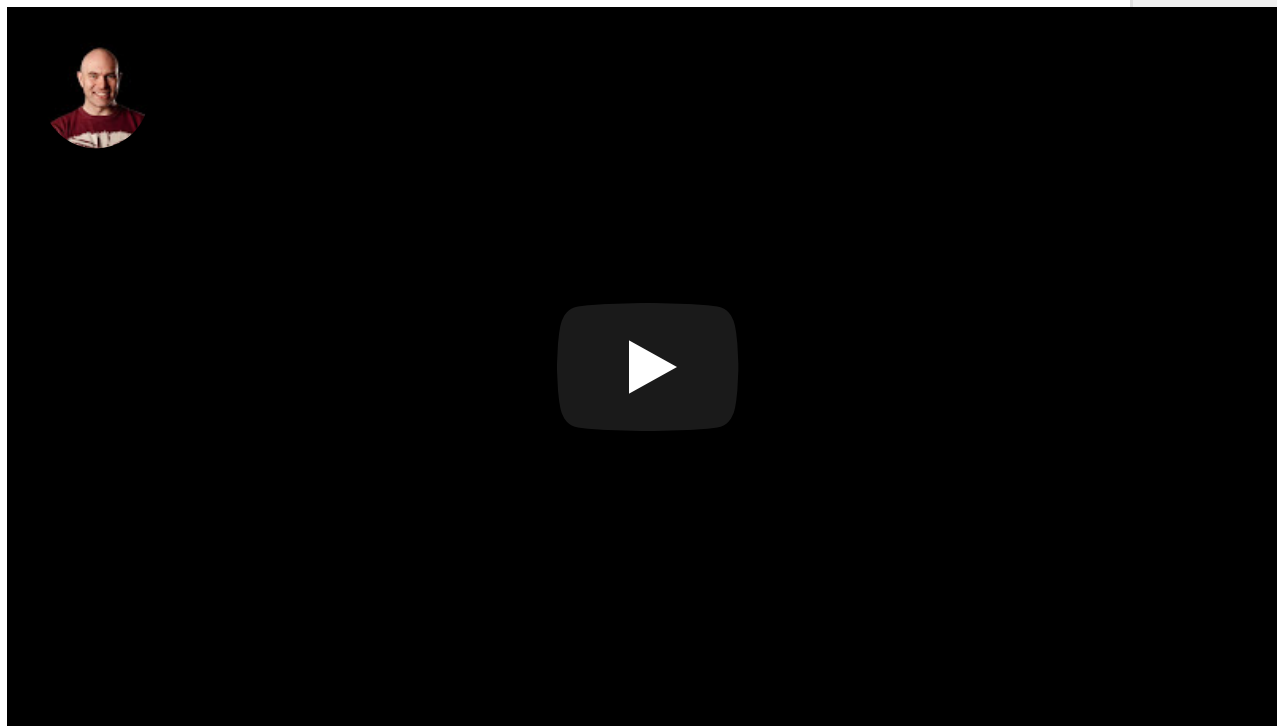
**Update to version 0.15.11.3 "Mach" (Note for Kopernicus users: DO NOT overwrite MFI that comes with Kopernicus since it is locked to that particular version)**

**ALL USERS: NO LOGS OR REPRODUCTION  
STEPS = NO SUPPORT**

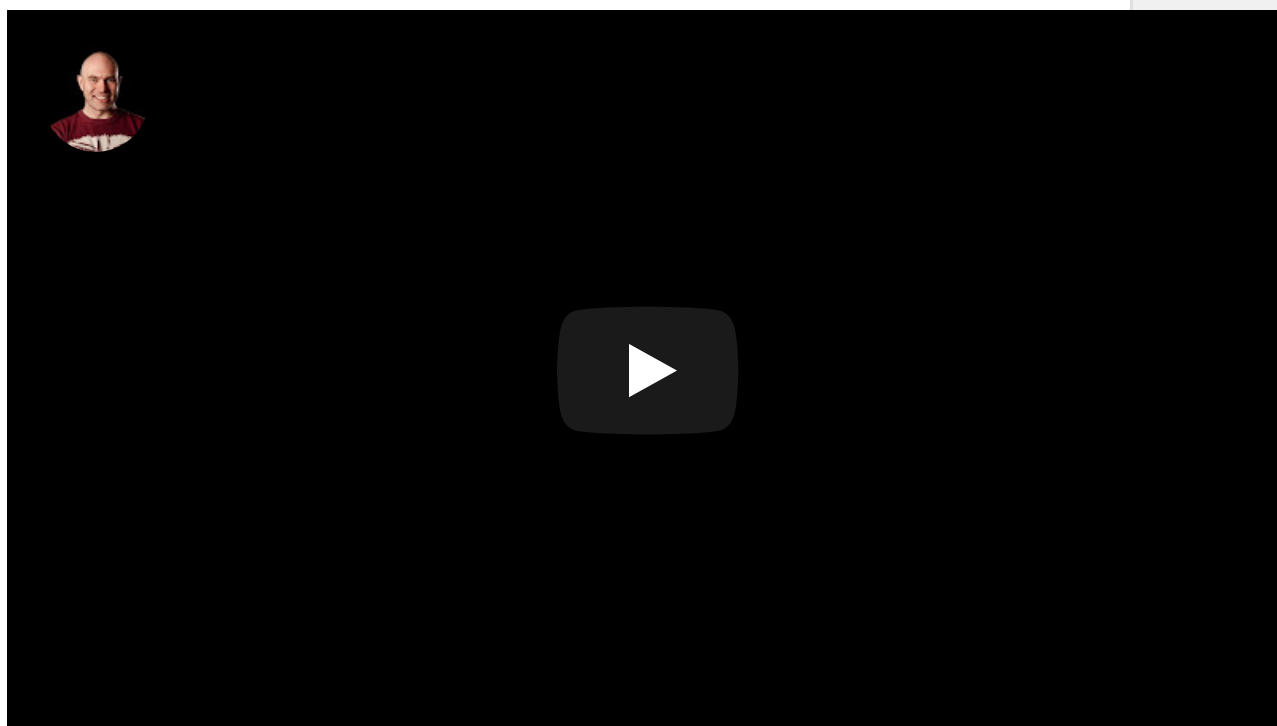


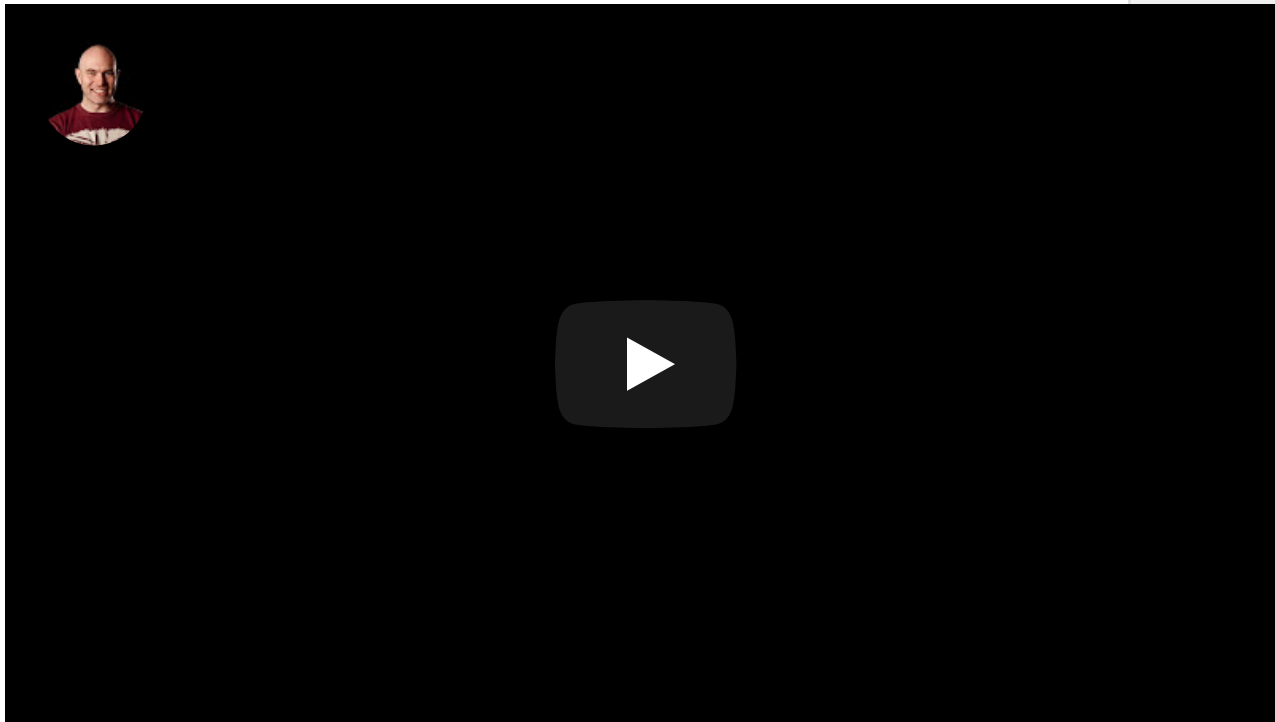
"CRASHING YOUR PLANES SO YOU DON'T HAVE TO!"

Original Review:



Aerodynamic Failures:





## Features

- **Shape-Based, Vessel-Centered, Aerodynamics** - Long, thin shapes drag less than wide, flat shapes, and smooth changes in body width reduce drag. The shape of the vessel as a whole, not individual parts, controls drag, so shape the vessel as you see fit.
- **Emergent Fairings and Cargo Bays** - The voxel model method FAR uses allows for the actual shape of the vehicle to play a role in how lift and drag are applied. Build a hollow shell, and close it up, and everything inside it will be protected from the airflow as it should.
- **Wing Effects** - Realistically adjusts lift based on wing position and configuration: wingtips lift less and drag more than wing roots.
- **Stall** - Passing the critical angle of attack suddenly reduces lift and greatly increases drag. Can put planes into tailspins, flat spins, and cause crashes.
- **Mach Effects and Area Ruling** - Lift and drag will vary as expected with Mach number. Supersonic planes will need to properly area rule themselves for optimum flight characteristics.
- **Body lift** - All parts lift: a fast enough brick will fly, if not that well.

Download:

[Get v0.15.11.3 "Mach" from Github!](#)

Post your crafts there, not here, please.

Violators will have their posts moved by moderators, and will have everyone very annoyed with the additional workload for both moderators and me.

[The FAR wiki at GitHub](#)

[The source at GitHub](#)

Everything licensed under GNU GPL v3

Part.cfg changes powered by [sarbian & ialdabaoth's ModuleManager plugin](#).

Interface with stock heating system and other mods interacting with the physics system powered by [sarbian, Starwaster and ferram4 ModularFlightIntegrator](#)

Toolbar powered by [blizzy78's Toolbar plugin](#).

### Installation:

Copy the GameData and Ships folders into the KSP root directory and merge them with the existing GameData and Ships folders.

Make sure that you copy over *everything* in the GameData folder. Serious issues *will* occur unless this is done.

### Changelog:

➤ **Reveal hidden contents**

### ***FAQ - Common Questions and Solutions to Common Problems***

#### **What does this mod do that stock KSP doesn't?**

Stock KSP calculates drag as a linear combination of the drag properties of a vehicle's parts, with some interaction changes to handle some of the most obvious aerodynamic interaction effects. FAR instead calculates the drag from the vessel shape as a whole, resulting in a more realistic model of aerodynamic drag and body lift. In addition, FAR accounts for wing shape, rather than just overall area like stock KSP. Finally, thanks to the overall vessel model, FAR can account for things like area ruling, where the vehicle's area cross-section must vary properly in order to fly at supersonic speeds (well, without MOAR BOOSTERS, in any case).

**I don't like my rocket coming apart under heavy aerodynamic loads; how can I turn it off?**

In the Space Center scene [FAR](#) has a debug menu that can be accessed to mess with a large number of the parameters. Under the "cheats" section of the first tab there is an option to disable aerodynamic failure.

**Does this plugin work properly with other mods / part packs?**

Sure; [FAR](#) figures out what the properties of the part should be based on its dimensions and some basic aerodynamic assumptions. If you use a mod and suspect that it causes unrealistic behavior, search the thread to see if it has been brought up / addressed by the latest release; if it hasn't, feel free to bring it to my attention. The only exception is with wing parts, which are more complicated and currently must have their properties specified manually.

**Does this plugin make payload fairings and cargo bays work properly?**

Yes, it will support any and all fairings and cargo bays. Even those that you make out of completely unrelated parts, so long as you close up the shape. In fact, to [FAR](#), there is little difference between the inside of a closed fairing and the inside of a fuel tank part; they're both just as internal to it.

**I can't seem to turn off the Flight Assistance Systems... what's going on?**

In the Flight Assistance GUI every button that is pressed activates a control system; when none are pushed down no control systems are active. I suspect that you've actually created a poorly designed craft and that you're attributing aerodynamic forces that you're not used to dealing with to non-existent control inputs.

**Do I need ModuleManager and/or ModularFlightIntegrator?**

Yes; they are used to properly apply aerodynamic properties to stock wing parts and to interface properly with the game's physics system. Not using them will cause [FAR](#) to not function.

**I'm using the win64 KSP build and I am still too outraged to read the topic title or changelog, please mock me.**

Very well, I shall. Haha, silly person. Anyway, win64 is now unlocked for the foreseeable future. If it turns back into the crashtastic support-heavy nightmare it was, the lock may return, but I do not anticipate the need to do that.

Edited October 27 by [dkavolis](#)

Mach



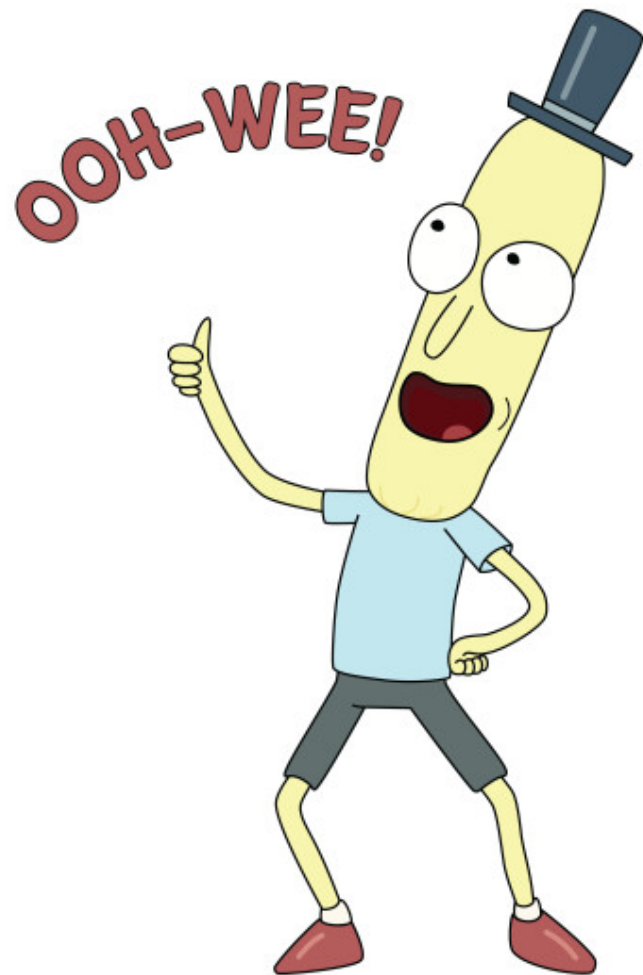
Quote

You, Gordon Fecyk, taniwha and 26 others like this





Members  
**+ 130**  
513 posts  
Location: LKO



Quote

Spraki, hab136, Paulestrada and 1 other like this



**dundun92**

DCS World F-15C Eagle driver.



Members  
**+ 1,169**  
1,136 posts  
Location: Texas

Posted October 31, 2018

Report post

**@dkavolis**, do you have intentions of making a 1.4 recompile as well? Or just 1.5 up? Just curious.



Quote



My mods : [Kerbal Weapons System](#) Kerbal

Combat Simulator: [Kerbal Combat Simulator](#) [Guide to the most](#)

**asdfCYBER**

Spacecraft Reverse Engineer



Posted November 1, 2018

Report post



On 10/31/2018 at 9:52 PM, dundun92 said:



**@dkavolis**, do you have intentions of making a 1.4 recompile as well? Or just 1.5 up? Just curious.

I have the [1.4.3](#) and [1.4.5](#) unofficial release, but that is without the

Members  
+ 59  
222 posts

bugfixes this version has. A backport is easy to make as long as no major KSP updates break stuff though.

+ Quote



Two wrongs are only the beginning. // If at first you don't succeed, destroy all evidence that you tried. // For every action, there is an equal and opposite criticism. // Software is a form of intellectual duct tape.



**dkavolis**

Rocketry Enthusiast



Members  
+ 158  
75 posts

Posted November 1, 2018

Report post

On 10/31/2018 at 9:52 PM, dundun92 said:

@dkavolis, do you have intentions of making a 1.4 recompile as well? Or just 1.5 up? Just curious.

I'd rather support a single KSP version for now (and the version RO targets if it is updated). I can provide recompiles (bug free not guaranteed, you would be on your own) for older versions as well, using a script to automate builds for each. You can find 1.4.5 recompile on [https://drive.google.com/drive/folders/1\\_xlZyOvcSAIqgLkLbdCPJir\\_3cLVlsv6V?usp=sharing](https://drive.google.com/drive/folders/1_xlZyOvcSAIqgLkLbdCPJir_3cLVlsv6V?usp=sharing)

+ Quote

Joal ban Kluane, dundun92, AloE and 2 others like this



**dundun92**

DCS World F-15C Eagle driver.



Members  
+ 1,169  
1,136 posts  
Location: Texas

Posted November 1, 2018 (edited)

Report post

On 11/1/2018 at 5:21 PM, dkavolis said:

and the version RO targets if it is updated

Quite likely it will be 1.4.x, unless all the other dependencies are 1.5 ready too. Anyway, thank you for continuing this wonderful mod!

Edited November 1, 2018 by dundun92

+ Quote



My mods : [Kerbal Weapons System](#) Kerbal



## dkavolis

Rocketry Enthusiast



Members

+ 158

75 posts

Posted November 1, 2018

Report post

On 11/1/2018 at 5:22 PM, dundun92 said:

Quite likely it will be 1.4.x, unless all the other dependencies are 1.5 ready too. Anyway, thank you for continuing this wonderful mod!

No problem, just want RQ to be updated to the latest KSP version.



Quote

brdxman, dundun92 and Kevin Kyle like this



## dkavolis

Rocketry Enthusiast



Members

+ 158

75 posts

Posted November 1, 2018

Report post

The fork is now on CKAN, you need to set CKAN to install mods for KSP 1.4 to satisfy the ModularFlightIntegrator dependency.



Quote

Nansuchao and brdxman like this



## nanowinner

Explosions Expert



Members

+ 6

117 posts

Posted November 3, 2018

Report post

You are a lifesaver! I've been using your releases ever since the first one. Couldn't be happier! 🤖

Thanks for the **great** work you've been putting in! 🤖



Quote

Pds314 likes this



## Jesusthebird

Lander Commander



Posted November 4, 2018 (edited)

Report post

Just fyi. I just saw this pop up on ckan. This mod requires MFI to function afaik but isnt a listed dependency on ckan

Oops just saw the post few above. I have 1.4.x versions checked in





Members  
+ 130  
513 posts  
Location: LKO

[ckan](#). But mfi still doesnt pop up as a dependency.

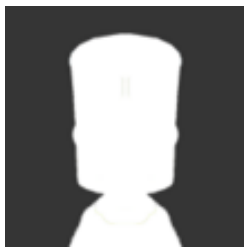
Edited November 4, 2018 by Jesusthebird

+ Quote



## dkavolis

Rocketry Enthusiast



Members  
+ 158  
75 posts

Posted November 4, 2018

Report post

On 11/4/2018 at 1:40 AM, Jesusthebird said:

Just fyi. I just saw this pop up on [ckan](#). This mod requires MFI to function afaik but isnt a listed dependency on [ckan](#)

Oops just saw the post few above. I have 1.4.x versions checked in [ckan](#). But mfi still doesnt pop up as a dependency.

MFI has been updated to KSP 1.5 on [CKAN](#) so it should work now.

+ Quote



## taniwha

Construction Gingerbeer



Members  
+ 2,096  
3,579 posts

Posted November 4, 2018

Report post

@dkavolis: Thank you. I had been building my own since 1.3, but this saves me the effort (and makes many others happy too).

+ Quote



Leave others their otherness. -- Aratak

There is no can't. -- Duun

It's better to have it and not need it than to need it and not have it. -- taniwha

[Support me on patreon.](#)



## Kevin Kyle

Rocketry Enthusiast



Posted November 4, 2018

Report post

Awesome stuff



Members

+ 142

319 posts



Quote



## RoboRay

Rocket Surgeon



Members

+ 1,358

1,642 posts

Posted November 4, 2018 (edited)

Report post 



On 11/1/2018 at 5:22 PM, dundun92 said:



Quite likely it will be 1.4.x, unless all the other dependencies are 1.5 ready too. Anyway, thank you for continuing this wonderful mod!

There is some "KSP 1.5.1" activity happening on the [RO](#) GitHub.

Edited November 4, 2018 by RoboRay



Quote

dundun92 likes this



## Ninadragonborn

Spacecraft Engineer



Members

+ 10

126 posts

Posted November 5, 2018 (edited)

Report post 

i am playing in 1.4

and in [RSS](#)

but i am not getting any lift

on anything

as can be seen in this pictures

what is the reason

i am playing with 86 mod



Edited November 5, 2018 by Ninadragonborn

+ Quote



asdfCYBER

Spacecraft Reverse Engineer

Posted November 5, 2018

Report post





Members

+ 59

222 posts

On 11/5/2018 at 8:23 AM, Ninadragonborn said:

i am playing in 1.4

and in RSS

but i am not getting any lift

FAR disables itself when it is not on a version it has been compiled for, this version is for KSP 1.5.x only. If you can live without the bugfixes you can use my [patch for 1.4.x](#), otherwise you'll have to wait for this version to be backported.

+ Quote



Two wrongs are only the beginning. // If at first you don't succeed, destroy all evidence that you tried. // For every action, there is an equal and opposite criticism. // Software is a form of intellectual duct tape.



# Ninadragonborn

Spacecraft Engineer



Members

+ 10

126 posts

Posted November 5, 2018

Report post



On 11/5/2018 at 10:20 AM, ExtremeTrader said:

FAR disables itself when it is not on a version it has been compiled for, this version is for KSP 1.5.x only. If you can live without the bugfixes you can use my [patch for 1.4.x](#), otherwise you'll have to wait for this version to be backported.

thanks for help [ExtremeTrader](#)

i will try the mentioned version

i hope the bugs are not game breaking bug



+ Quote



# Gordon Dry

Agnostic with two eyes



Members

Posted November 7, 2018

Report post



I have still purple curves ... because -force-glcore ?

+ Quote



+ 454

2,835 posts

Location: The Hanse was here

KSP 1.8.1 +Serenity @ Windows 10 Pro x64 @ 16 GB @ no parameter

What actually™ (+/- a day or so) is inside my [GameData\zFinal\](#) folder?

| Put in KSP root folder: [\\_delete\\_MM\\_Cache\\_and\\_PartDatabase.cmd](#) and

[\\_find NaN.cmd](#)

KSP 1.8.1 METRE + (TAG 1.8.1 METRE +) 1.8.1 METRE +

## reedhashlock

Curious George



Members

+ 6

24 posts

Posted November 8, 2018 (edited)

Report post

**KSP: 1.5.1 64bit**

**Problem:** Lift indicator stuck on ground

**Mods installed:**

FAR 0.15.9.5

ModuleManager 3.1.0

**Reproduction steps:**

Copied the master zip file from the github link, extracted the GameData folder from the zip file. Copied the GameData folder and overwrote the one in the main game install folder.

Loaded up a stock craft and toggled the lift indicator

**Log:**

<https://drive.google.com/file/d/11jHTHeXtjHj8o9zXQjP-N2QmN7Pzyxey/view?usp=sharing>

Read the github files again, very carefully this time. Turns out I also needed MFI. 🤖

Edited November 8, 2018 by reedhashlock

Found a fix



Quote



## Gordon Fecyk

(Trust me, I'm an) Engineer, eh?



Members

Posted November 10, 2018

Report post

It feels like Ferram Aerospace. My [Fat-Star heavy lifter](#) flies, glides and lands on KSP 1.5.1 as I expect it to on KSP 1.3.1. Well done!



Quote



['Explodium-breathing' engines on Eve!](#) KSP 1.8 compatible. | [I did it!](#)



683

919 posts

Location: Manitoba, Canada

[finally did it!](#) SSTLEO. \*\_\* | [Kanadian English](#), where a 'meter' isn't a 'metre,' eh?

[The story of two hosers and the empties they leave in space.](#) [An explorer powered by rocks and dice.](#) [A Big Celebration due to Gravity](#), aka: Purple

AloE

Observe, Explore, Listen,  
Collaborate



Members

45

106 posts

Location: Switzerland

Posted November 13, 2018 (edited)

Report post

On 11/13/2018 at 12:17 AM, Booots said:

"Speaking of [FAR](#)... It's not currently compatible, but I would like to add that. The challenge is multithreading the [FAR](#) calculations. I scratched together enough open-source info on the stock aero stuff to make a threadsafe aero calculator, but [FAR](#)'s methods are not threadsafe. So I could add it now, but it would take a few minutes to generate a flight envelope (instead of a few seconds). I'm hoping to work with the [FAR](#) devs to find a way forward....Until/unless [FAR](#) makes improvements to their API that lets me access the data I need (or I recreate their methods inside of this mod, which introduces maintainability, versioning, and potentially licensing issues), [FAR](#) unfortunately can't be compatible with this. I would really like to make them work, though.

[@dkavolis](#) might the above be within your scope of interest & time capacity to evaluate if it is even a possibility for the future of [FAR](#)...a [Kerbal Wind Tunnel](#) type envelope plot working with [FAR](#) in [RO](#)? Maybe you have already discussed with [@Booots](#) (I did not see any conversation on the topic with Booots over at Git so decided to ask here) Thanks!

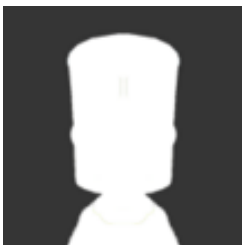
Edited November 13, 2018 by AloE  
forum gui input hang

Quote

Gordon Dry likes this

dkavolis

Rocketry Enthusiast



Members

158

75 posts

Posted November 13, 2018

Report post

On 11/13/2018 at 12:04 PM, AloE said:

[@dkavolis](#) might the above be within your scope of interest & time capacity to evaluate if it is even a possibility for the future of [FAR](#)...a [Kerbal Wind Tunnel](#) type envelope plot working with [FAR](#) in [RO](#)? Maybe you have already discussed with [@Booots](#) (I did not see any conversation on the topic with Booots over at Git so decided to ask here) Thanks!

It is definitely in my scope of interest, IMO it should be built into [FAR](#), however making [FAR](#) compatible with Kerbal Wind Tunnel should be easier and faster. I'll look into what can be done. Thanks.

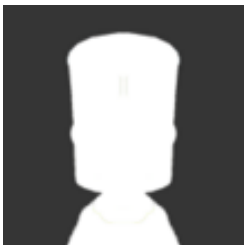
+ Quote

AloE likes this



**Boots**

Rocketeer



Members

+ 395

307 posts

Posted November 15, 2018

Report post

On 11/13/2018 at 12:04 PM, AloE said:

@dkavolis might the above be within your scope of interest & time capacity to evaluate if it is even a possibility for the future of [FAR](#)...a [Kerbal Wind Tunnel](#) type envelope plot working with [FAR](#) in [RO](#)? Maybe you have already discussed with @Boots (I did not see any conversation on the topic with Boots over at Git so decided to ask here) Thanks!

[RO](#) shouldn't be a problem from a Kerbal Wind Tunnel perspective. Though I haven't tested it, it pulls all the atmospheric and gravity data from the celestial bodies loaded in-game so that should be okay. [FAR](#) compatibility is on the horizon for KWT.

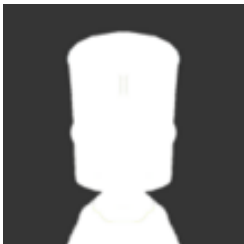
+ Quote

AloE likes this



**Kroslev Kerman**

Spacecraft Engineer



Members

+ 46

168 posts

Location: inside Battleship Argus

Posted November 17, 2018

Report post

I dont really understand this mod so the Heavy Aerodynamic stress you mean Max Q or when you pitch too hard right?

+ Quote



The only hinge I need is physics. 🤖



**Gordon Dry**

Agnostic with two eyes



Posted November 18, 2018

Report post

I tried the latest repo from 2 hours ago - with Procedural Fairings.

No chance. I even set the start of the gravity turn (MechJeb) at 12 km / 300 m/s.





Members

+ 454

2,835 posts

Location: The Hanse was here

Too much of a drag from the top. And the fairing is not too blunt.  
It's like the whole rocket is "too light" ...



Quote



**KSP 1.8.1 +Serenity** @ Windows 10 Pro x64 @ 16 GB @ no parameter  
What actually<sup>TM</sup> (+/- a day or so) is inside my [GameData\zFinal\](#) folder?  
| Put in KSP root folder: [\\_delete\\_MM\\_Cache\\_and\\_PartDatabase.cmd](#) and  
[\\_find NaN.cmd](#)  
Kerbolium for MET DEeds / TAG LS for MET DEeds - a spreadsheet for



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