

## Kerbal Space Program - Bug #13314

### Spontaneous Explosion AGAIN!

11/26/2016 01:28 PM - Daveroski

<b>Status:</b>	Investigating	<b>Start date:</b>	11/26/2016
<b>Severity:</b>	Normal	<b>% Done:</b>	20%
<b>Assignee:</b>			
<b>Category:</b>	Physics		
<b>Target version:</b>	1.4.3		
<b>Version:</b>	1.2.1	<b>Language:</b>	English (US)
<b>Platform:</b>	Linux	<b>Mod Related:</b>	No
<b>Expansion:</b>	Core Game		

#### Description

I spent hours over the last few days designing a ship that could efficiently land on Mimnus and haul a load of ore to the station for processing. Just enough fuel.  
I got it to mimnus.  
Landed and mined the ore.  
Went to the station and got there with no fuel to spare.  
I went back to KSP to check how long I had before a Duna flight needed attention then went back to my station at Mimnus.  
For a second or two my station seems fine and loaded.  
Then BOOM! my new ship tears itself apart.  
This kind of thing happens often enough that the developers must know about it and what causes it. Maybe they are not bright enough to fix it or maybe they just never make and test anything of any real complexity.  
I even avoided putting landing legs on it because I know how fragile KSP is.  
This however is going too far.  
I'm not able to make the ships I want to make.  
I have to consider KSP's fragility in every build and that just won't do any more.  
I want to use mods. I REALLY REALLY want to use mods but I can't. Because if KSP can't hold itself together in VANILLA how have I got any chance of enjoying a decent game with mods?  
Two pictures for your album. The first one (Screenshot74) I call "Don't get too attached" the second (screenshot75) I call "Time well wasted"  
While I am pretty much addicted to KSP (Over 4000 hours) I am quickly getting to the point where I have to "pull the switch on a loved one."  
This has ruined my gameplay. Right now I can't go back to the game. I'm at a loss.

#### History

##### #1 - 11/27/2016 09:18 AM - AlfromKerbal

Did you play around with autostruts? It may help in some instances.

I'm not able to make the ships I want to make.

I see this the same way! Seems that physics have been broken at some point.

See also: [#13318](#), [#13250](#), [#13276](#), [#13080](#), [#13033](#) (not directly physics, but it causes connected parts/bases to oscillate until destruction)

##### #2 - 11/27/2016 04:33 PM - Daveroski

When I docked the ship, all was stable. No shakes at all.

As I docked, I turned off RCS and SAS so that as the two joined, it wouldn't get confused as it often does.

After I dock I look at the bottom left of screen to see if the station SAS is trying to adjust the station. It Was Stable.

I even processed some ore into monoprop.

I had an upcoming manoeuvre on a craft on it's way to Duna. I went to KSP to check the status of the craft and I still had days before the manoeuvre so I simply went back to my station at Mimnus.

Within a few seconds of loading my new ship exploded on the dock. Every reload it did the same, Verifying KSP on steam it did the same. Loading a save before the ship docked, it still get destroyed on load.

What I can't understand is why didn't it pop when it got to the launchpad from the VAB? Why did it survive the weak connection between the 3.5 fairing and anything that touches it? Why didn't it pop after the timewarp when physics reasserts itself? I made it without legs so it's not an autostrut problem.

##### #3 - 11/27/2016 09:04 PM - AlfromKerbal

Well, I could imagine, that it might be something similar to [#13033](#). When leaving the scene, everything is good, when loading the scene, something

isn't the same as you left the scene. In my case wheels stuck in surface, in yours parts might stuck into each other. As i understand, crafts/scenes get packed on leave and unpacked on refocus. Maybe there are some inaccuracies doing this.

On the other hand, you surly did change focus before without exploding, did you?

#### #4 - 11/28/2016 02:14 PM - Squelch

- Status changed from New to Need More Info

Thanks for reporting this. There is certainly something not right here, and there appears to be log entries that haven't been seen before in any tests, or indeed other reports, so this could well be an edge case.

Could you please upload a pre-dock save to aid in debugging what happens with the vessel identifiers?

There should be time stamped backup saves thus:

```
saves/Albert/Backup/persistent (YYYY_MM_DD_hh_mm_ss).sfs
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#### #5 - 11/28/2016 06:30 PM - Daveroski

- File p (2016\_11\_26\_12\_31\_06).sfs added

The ship is in orbit around Mimmus. It is called WIP Ore Miner 04  
When I load this save and go to the ship, it explodes while the universe shakes.

#### #6 - 11/29/2016 12:02 PM - Daveroski

I just tried to look at the ship in that savegame again but with 'unbreakable joints' turned on. Wow.. now that was freaky.

#### #7 - 12/14/2016 08:31 PM - AlffromKerbal

- File quicksave #17.sfs.zip added

- File KSP.log added

- Status changed from Need More Info to Updated

- % Done changed from 0 to 10

I think it's related.

I recently had some sudden upshaking and exploding of my orbital base. Docked heavy weight stuff, seems the last one was too much to handle (too many parts?).

I'm wondering, isn't there any resistance in all of that wobbling? Actually you have something like perpetuum mobile - bases/ships start wobbling which rises until destruction.

I prevented wobbling & explosion by decoupling the most hvy. weight SSTO plane.

#### #8 - 12/17/2016 04:30 PM - Daveroski

The save I uploaded in the edit above yours p (2016\_11\_26\_12\_31\_06).sfs has my ship before docking at the station and that was the ship I was referring to.

Your plane was a problem because the autostruts on the wheels connected to the heaviest part on the station and that can cause problems.

#### #9 - 12/17/2016 04:41 PM - AlffromKerbal

the autostruts on the wheels connected to the heaviest part on the station and that can cause problems.

I also see this at my mun planetary base sometimes after shifting fuel, first there is no problem, but on leaving and returning to scene it starts. Autostruts for wheels/landing legs should not be forced or at least the general problem with physics should get fixed somehow.

#### #10 - 01/08/2017 11:51 AM - Daveroski

The ship and save file I posted clearly shows that this is not related to that problem.

The ship I posted has no wheels or landing struts.

I didn't use either because I tried my best to prevent any problems from known bugs.

It seems that my designs can cause errors never seen before which makes it a 'fringe' case.

As I see it, if I go to the trouble of trying to make ships in only stock parts and with as little clipping as possible and these designs then go on to be 'fringe' kraken inducing disasters, my time is better spent elsewhere.

Being a 'fringe' case suggests that this bug will never be addressed.

This bug prevents me from playing as I wish to with stock and within the guidelines provided.

The thing is, I have seen this bug several times before.

While I was playing with modded games I saw this bug and assumed it was a mod causing the problem. As I couldn't say which mod caused it, I

never reported it. Indeed, if I had, Squad would not have touched it as the game was modded and not enough data could be supplied. This is vanilla. A ship craft file has been provided. A save game has been provided. Screen shots have been provided. All I need now is a solution.

**#11 - 01/31/2017 11:35 AM - rudi1291**

- File *just\_a\_moment\_before\_that\_exploding.sfs* added  
- File *screenshot565.png* added

Just throwing this in here. The ship in question is "Kerbin SOI Taxi", the station is "Station Launch One". Both completely stock. As is the savegame. Loading the quicksave should load up with the ship about to dock. When the ship is docked, the station starts to vibrate. No flexing, just vibrating, increasingly. Until it all explodes.

Whats really interesting though: It only starts to vibrate, when the GUI is on. Turning the GUI off (F2) just before docking and it wont start to vibrate and explode. WTH...

**#12 - 02/26/2017 11:13 AM - Daveroski**

I haven't done any coding since before most of you guys could chew your own food.

As I clearly was not going to get any help from you I decided to look at it myself.

I've sussed it and started fixing it myself too.

The clue is in lines 5 and 6 of my description of the problem. Which is far more help and consideration than you gave to me.

Good luck with that.

**#13 - 08/05/2017 07:18 AM - jclovis3**

I've been testing various causes and have come to the conclusion that auto strut to heaviest part is the source of the issue. When fuel tanks change their mass with the movement or depletion of fuel, the heaviest part shifts around and the auto strut jumps with it, making the ship unstable.

The best solution is to use auto strut to grandparent or root where needed. With grandparent, you get the strength of a triangle in that the part connects to a parent and struts to a grandparent. Setting this up during design time is best, but you can also set it while in orbit and definitely should check every part before transferring fuel. So much as a small RCS tank with auto strut to heaviest part can cause the explosion. Only when heaviest part is not a fuel tank will you be safe, and that will never be the case on large ships.

**#14 - 08/05/2017 07:20 AM - jclovis3**

rudi1291 wrote:

Just throwing this in here. The ship in question is "Kerbin SOI Taxi", the station is "Station Launch One". Both completely stock. As is the savegame. Loading the quicksave should load up with the ship about to dock. When the ship is docked, the station starts to vibrate. No flexing, just vibrating, increasingly. Until it all explodes.

Whats really interesting though: It only starts to vibrate, when the GUI is on. Turning the GUI off (F2) just before docking and it wont start to vibrate and explode. WTH...

jclov3 wrote:

Just as I described in my other edit, the heaviest part changes when you dock, so all your auto struts on heaviest part will shift causing the instability. Try using grandparent or root for the auto strut setting.

**#15 - 04/25/2018 12:31 AM - jclovis3**

- File *After loading quick save.png* added  
- File *Autostrut instability Save.zip* added  
- *Expansion Core Game* added

Still persistent in 1.4.2 and seems to matter more with larger ships and sometimes not an issue on the launch pad when it can be in orbit. I created this ship (Test.craft) and placed it on the launch pad. Was stable. Note, only the bottom center fuel tank is full.

Then changed the autostrut on the Nerv engines to Heaviest part (the tanks already have this set). Still stable. Went to Warp x5 and back to x1. Still stable. Reset autostrut back to disabled on the Nerv engines. Used Ctrl-Alt-F12 to cheat orbit the craft. Set warp x5, then x1. No problem. Changed Nerv engine autostrut to Heaviest part. Still stable. Set warp x5, then x1 and lost stability. Ship shook apart.

There seems to be a correlation with the number (or total mass) of radial parts that use "heaviest part" settings. Central (non-radial) parts seem to be ignored in this. I added more tanks down the center and didn't have an issue. Then I changed the top four radial tanks to individual tanks and was able to set each one to heaviest part without problems. I suspect that the autostrut calculations through radial mounted items is where you should focus your attention at this point.

I would add Windows platform to this by the way, but that option is no longer available for me.

**#16 - 04/25/2018 12:32 AM - jclovis3**

- File *Test.craft* added

**#17 - 04/26/2018 11:01 PM - Squelch**

- Status changed from Updated to Ready to Test
- Target version set to 1.4.3
- % Done changed from 10 to 80

Improvements to both the landing gear/legs have been made as well as vessel positioning on load.

**#18 - 04/27/2018 05:21 AM - jclovis3**

- File Engines about to wobble apart.sfs added
- Status changed from Ready to Test to Not Fixed
- % Done changed from 80 to 50

Squelch wrote:

Improvements to both the landing gear/legs have been made as well as vessel positioning on load.

Landing gear and legs have nothing to do with this bug. Attached save file with vessel created in 1.4.3 to confirm bug still exists.

**#19 - 04/27/2018 01:20 PM - Squelch**

- Status changed from Not Fixed to Investigating
- Severity changed from High to Normal
- % Done changed from 50 to 20

jclov3 wrote:

Squelch wrote:

Improvements to both the landing gear/legs have been made as well as vessel positioning on load.

Landing gear and legs have nothing to do with this bug. Attached save file with vessel created in 1.4.3 to confirm bug still exists.

You are correct of course. This was an admin oversight.

**Files**

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Player.log	730 KB	11/26/2016	Daveroski
KSP.log	307 KB	11/26/2016	Daveroski
screenshot74.png	1.49 MB	11/26/2016	Daveroski
screenshot75.png	1.7 MB	11/26/2016	Daveroski
quicksave.sfs	4.55 MB	11/26/2016	Daveroski
Auto-Saved Ship.craft	218 KB	11/26/2016	Daveroski
p (2016_11_26_12_31_06).sfs	4.55 MB	11/28/2016	Daveroski
quicksave #17.sfs.zip	691 KB	12/14/2016	AlffromKerbal
KSP.log	250 KB	12/14/2016	AlffromKerbal
just_a_moment_before_that_exploding.sfs	4.35 MB	01/31/2017	rudi1291
screenshot565.png	643 KB	01/31/2017	rudi1291
After loading quick save.png	785 KB	04/24/2018	jclov3
Autostrut instability Save.zip	30.8 KB	04/24/2018	jclov3
Test.craft	91.4 KB	04/25/2018	jclov3
Engines about to wobble apart.sfs	885 KB	04/27/2018	jclov3