Kerbal Space Program - Bug #27286

Physics changes after reverting to launch

02/16/2021 06:52 AM - meltingSnowdrift

Status:	New	**Start date:**	02/16/2021
Severity:	Low	**% Done:**	0%
Assignee:			
Category:	Physics		
Target version:			
Version:	1.11.1	**Language:**	English (US)
Platform:	Windows	**Mod Related:**	No
Expansion:	Breaking Ground		

Description

KSP version information
KSP 1.11.1 on Windows with breaking ground expansion, 64-bit, not Steam

Steps to reproduce
Launch the attached craft file at the runway from the spaceplane hangar with a kerbal in the command seat.
Activate the abort action group.
Wait until the parachute opens, which should occur 5 seconds after activating the action group.
Revert to launch.
Activate the abort action group again.

Expected behaviour
What happens upon activating the abort action group after launching from the spaceplane hangar should be identical to what happens upon doing so after reverting to launch.

Observed behaviour
See this video: https://www.youtube.com/watch?v=0oVuRl5K-jU

After reverting to launch, it appears to me that there occur changes to the physics of the game. Repeatedly reverting to launch does not further affect this behaviour and will repeatedly produce the altered behaviour. Reverting to the spaceplane hangar and launching again will produce the original behaviour, which can again be turned into the altered behaviour by reverting to launch.

History

#1 - 02/16/2021 11:05 AM - jukkamuhonen@hotmail.com

I do think it doesn't change physics but it might be related KSP forgetting absolute rotation of vessel, or if reverting to back to launch vessel isn't physically locked anymore when its at stability enchancers. It feels when you have fresh vessel it is more sturdy standing than it is when coming back to it later. It feels too that if you have vessel at launching pad it is more sturdy than vessel with same conditions at runway. So there might be some in-game parameter which stands for pre-launch condition, which it forgets when you revert back to launch.

#2 - 02/16/2021 05:04 PM - meltingSnowdrift

I am not convinced about that interpretation. Here is another video I made earlier demonstrating that something similar occurs in a way that is less likely to involve launch clamps: https://www.youtube.com/watch?v=nM2v9qgnTSw
I originally did not include that video because the procedure to reproduce was not as perfectly repeatable as the one I eventually made. I am including it now because it may help in distinguishing between potential causes of the problem.

#3 - 02/20/2021 09:18 AM - jukkamuhonen@hotmail.com

There is good odds that it's KAS bug too. Can you check KAS values before launch, and after revert? KAS have some bugs, related to it forget some commands and sometimes even mixing commands with other vessel nearby, it can be possible there is timing bug too.

#4 - 03/05/2021 11:39 PM - meltingSnowdrift

What do you mean by KAS? As far as I know, "KAS" refers to a mod which was definitely not installed on the stock KSP installation I used to reproduce the bug. Considering the context, this is presumably not what you mean. Google searches for "KSP KAS values" and similar search strings did not produce any relevant results on the first page.

#5 - 03/06/2021 07:08 PM - Anonymous

- File swing.craft added

Confirming the bug, using the craft file in the top post (but I can no longer change the 'Status' field from New to Confirmed). A simple craft with Kerbal in the seat on top of a Flea booster also shows a difference between first load and revert.

We can turn off drag, and turn gravity down to 1% normal, using the Alt-F12 cheat/debug menu, and the first load still simulates the physics wrongly. So, it is not a difference in drag or sagging launch clamps. The mass of the craft is identical in each case.

If the Kerbal is in that chair when 'launched' from the VAB or SPH (a relatively new feature) then the Kerbal has an extremely large moment of inertia, slowing the initial rotation of the unstable ejection seat. Reverting to launch, or quicksave/quickload, corrects the problem.

I'll attach a craft file that lets a Kerbal swing on a swinging chair. If you load the Kerbal on the chair before exiting the SPH or VAB, the swinging is unnaturally slow.

#6 - 03/26/2021 10:50 PM - Krazy1

- File screenshot27.png added

- File 4_swings_test.craft added

Interesting test k-ohara. I was not able open your swing file in KSP 1.11.2 on Win10. There were errors and it said the version is not compatible.

I made another swing test file with 4 swings. The first in the front with FL-T100 only SHOULD BE the slowest, followed by the Kerbals (faster if they have cargo) and fastest is the rear swing with an extra Oscar-B on the arm. It's surprising physics but the extra mass closer to the hinge makes the moment arm shorter and period smaller.

At "launch" the kerbal swings go slower than the other 2 on the ends without chairs. This is not possible unless the kerbals have extremely high inertia. Revert to launch fixed this: the Kerbals swing period is now between the other 2 swings as expected. An empty chair works as expected - the problem is when there's a kerbal in the chair.

Files

bug demonstrator.craft	32 KB	02/16/2021	meltingSnowdrift
Player.log	801 KB	02/16/2021	meltingSnowdrift
DxDiag.txt	103 KB	02/16/2021	meltingSnowdrift
swing.craft	23.2 KB	03/06/2021	Anonymous
screenshot27.png	2.86 MB	03/26/2021	Krazy1
4_swings_test.craft	107 KB	03/26/2021	Krazy1