

Kerbal Space Program - Bug #28603

LT-05 landing legs bounce in violation of Newton's 3rd Law

01/21/2022 05:39 AM - jjansen

Status:	New	Start date:	01/21/2022
Severity:	Low	% Done:	0%
Assignee:			
Category:	Parts		
Target version:			
Version:	1.12.3	Language:	English (US)
Platform:	Windows	Mod Related:	No
Expansion:	Breaking Ground, Core Game, Making History		

Description

ISSUE: deploying the LT-05 Micro Landing Strut on any surface causes a massive launch with a lightweight craft and standard strut values. Bounces after are HIGHER than the previous bounce's maximum height, breaking the law of the conservation of energy.

This post led me to do some investigation:

https://www.reddit.com/r/KerbalSpaceProgram/comments/s92hah/are_micro_landing_struts_bugged_for_anyone_else/

I initially thought it was the fault of an interaction with the L3 Launch Pad as seen in the above link's video, but trying it on the runway revealed the same problem.

I took it to the next level however, showing that each bounce is higher than the last maximum height, going as high as 310m into the sky before it will crater.

History

#1 - 01/21/2022 05:46 AM - jjansen

The original reddit thread operates on Mac OS, found this on a clean install (I replicated it on my modded Win10 install) and reverted to different versions to check. He said it looks like the change happened between 1.11.2 and 1.12.1

https://www.reddit.com/r/KerbalSpaceProgram/comments/s92hah/are_micro_landing_struts_bugged_for_anyone_else/htk5v6/

#2 - 01/21/2022 06:07 AM - mkwarman

- File Screen Recording 2022-01-20 at 23.35.40-Zoomish Quality.mp4 added

- File Screen Recording 2022-01-21 at 00.16.44-Zoomish Quality.mp4 added

- File Screen Recording 2022-01-21 at 00.24.17-Zoomish Quality.mp4 added

I'm the OP of the post jjansen linked. Enabling advanced tweakables and turning down the spring and damper on the micro landing struts helped a bit, but there definitely seems to be a regression in behavior since 1.11.2. I'll attach a couple screen recordings to this note. I had to compress them a bit to get them to upload, but higher quality versions are available here:

- https://old.reddit.com/r/KerbalSpaceProgram/comments/s92hah/are_micro_landing_struts_bugged_for_anyone_else/
- <https://imgur.com/a/eR126R5>
- <https://imgur.com/a/5DWNwo4>

#3 - 01/21/2022 06:12 AM - jjansen

mkwarman wrote:

I'm the OP of the post jjansen linked.

can confirm

#4 - 01/21/2022 11:35 AM - Anth12

(Removed 2 previous posts)

Happens from 1.12.0

If I do it in 1.11.2 and max the dampeners and then max the springs I can get a similar result to 1.12

#5 - 01/21/2022 12:02 PM - Anth12

- File 1_11_2 QuickSave LT-05.sfs added

- File screenshot58.png added

KSP 1.11.2 + MH + BG
KSP 1.12.0 + MH + BG
KSP 1.12.3 + MH + BG

1_11_2 QuickSave LT-05.sfs is from 1.11.2 for testing.

The screenshot is of 1.12.3 with the test craft acting like its 1.11.2 but the spring/damper are a lot lower than they should be to stop the bouncing.

mkwarman: Agreed. Enabling advanced tweakables and turning down the springs/dampers is how to counter the problem

Lowering the spring/damper seems to counter the problem entirely.

#6 - 01/21/2022 12:13 PM - Anth12

- File 1.12.3 More Mass No Problem.png added

Great...and then a reload of the craft with those settings makes it go wonky in a different way, upping the dampers stopped that

And a craft with more mass does get different results correct?

1.12.3 More Mass No Problem.png This has more mass with less of an issue. the only thing that shows its still having a similar issue is because the legs are extended to nearly their max

#7 - 01/21/2022 10:32 PM - Anth12

This for some reason feels a lot like the springs are bottoming out when the settings are too high. The springs when set to 0 used to cause the legs or wheels to push out to their maximum if memory serves.

The only thing I can suggest is to do what you are already doing. Manually set the spring/dampers

Files

screenshot1481.png	2.76 MB	01/21/2022	jjansen
screenshot1482.png	2.49 MB	01/21/2022	jjansen
screenshot1483.png	2.41 MB	01/21/2022	jjansen
screenshot1484.png	2.64 MB	01/21/2022	jjansen
screenshot1485.png	2.69 MB	01/21/2022	jjansen
screenshot1480.png	2.72 MB	01/21/2022	jjansen
Screen Recording 2022-01-20 at 23.35.40-Zoomish Quality.mp4	5.33 MB	01/21/2022	mkwarman
Screen Recording 2022-01-21 at 00.16.44-Zoomish Quality.mp4	3.55 MB	01/21/2022	mkwarman
Screen Recording 2022-01-21 at 00.24.17-Zoomish Quality.mp4	1.67 MB	01/21/2022	mkwarman
1_11_2 QuickSave LT-05.sfs	65.7 KB	01/21/2022	Anth12
screenshot58.png	2.18 MB	01/21/2022	Anth12
1.12.3 More Mass No Problem.png	2.23 MB	01/21/2022	Anth12