

Kerbal Space Program - Bug #23177

Wheels bounce during surface docking.

07/13/2019 06:11 AM - 18Watt

Status:	Acknowledged	Start date:	07/13/2019
Severity:	Low	% Done:	100%
Assignee:			
Category:	Physics		
Target version:			
Version:	1.9.1	Language:	English (US)
Platform:	Linux, OSX	Mod Related:	No
Expansion:	Breaking Ground, Core Game		

Description

Subject: Wheels bounce during surface docking.

Description: When docking a rover to another surface vessel, the wheels of the lighter vessel become extremely springy, often bouncing the lighter vessel around violently after docking. This is more likely to occur when one vessel is significantly more massive (heavier) than the other. This effect appears to occur with most wheel types. I am also using robotic parts to facilitate docking alignment, although I'm not sure to what extent the robotics parts are contributing to the issue, if any. When I attempt this with two vessels having similar mass, the results are satisfactory.

Version: 02594 (1.7.3), with Making History and Breaking Ground expansion packs. MAC OSX.

Steps to Replicate: (screenshots may help here..)

1. Launch two rovers, with significantly different masses.
 - a. The heavy vessel does not need to be mobile, but should be much heavier than the lighter rover. Should have a docking port, tested with Dock Port Jr.
 - b. The lighter vessel is mobile with wheels, and can dock with the heavier vessel. I used robotics parts to facilitate this.
2. Align the vessels for docking, and dock.

Expected: After some initial wheel springiness, the joined vessel settles down, with no damage.

Observed: The lighter vessel begins to bounce with increasing energy, eventually leading to wheel damage, or the destruction of one or both vessels.

Fixes/Workarounds:

1. If both vessels are of similar mass, the wheels settle down fairly quickly after docking.
2. If the lighter vessel does **not** have wheels or landing gear, the joined vessel settles down with no damage.
3. There is one rover wheel which is retractable- Using the retractable rover wheels (Apollo style wheels), and retracting them before docking, eliminates the violent bouncing.
4. Note- After successfully docking with the Apollo rover wheels retracted, if you then extend the rover wheels the violent bouncing is again present.

*Notes: *

1. I have played with spring/damper rates with no success.
2. I have tried different wheels (except the really enormous ones), with no success.
3. All my failures have involved robotics parts, usually a servo, a couple of hinges, and a piston.
4. Screenshots are from testing on Kerbin, however the effects are actually worse on Minmus, sometimes sending both vessels flying.
5. I have tried reducing robotic part power to the bare minimum required to overcome gravity, no success.
6. Screenshots include vessels with similar mass successfully docking, as well as vessels with dis-similar masses docking unsuccessfully.
7. Does not seem to matter if the heavier vessel is on wheels or not, tested both ways. The lighter vessel needs to be on wheels.
8. Using stock landing gear to raise the wheels off the ground does not appear to help either, the stock landing gear produces similar unexpected bounciness.

History

#1 - 05/28/2020 08:53 PM - sschork

- Version changed from 1.7.3 to 1.9.1

- Platform Linux added

I have exactly the same problem with version 1.9.1/Linux

#2 - 08/13/2021 01:02 PM - Technicalfool

- Status changed from New to Acknowledged

- % Done changed from 0 to 100

I recall this being eventually resolved as part of another bug. If you're still having problems, please continue to report as usual.

Files

screenshot0.png	862 KB	07/13/2019	18Watt
screenshot2.png	845 KB	07/13/2019	18Watt
screenshot4.png	1.04 MB	07/13/2019	18Watt
screenshot6.png	872 KB	07/13/2019	18Watt
screenshot10.png	860 KB	07/13/2019	18Watt
screenshot13.png	825 KB	07/13/2019	18Watt
screenshot20.png	996 KB	07/13/2019	18Watt
screenshot21.png	748 KB	07/13/2019	18Watt