

## Kerbal Space Program - Bug #24554

### G-force calculation error on g-meter affecting high g adventure and fainting

01/08/2020 03:04 AM - kerman-space-systems

<b>Status:</b>	New	<b>Start date:</b>	01/08/2020
<b>Severity:</b>	Low	<b>% Done:</b>	0%
<b>Assignee:</b>			
<b>Category:</b>	Physics		
<b>Target version:</b>			
<b>Version:</b>	1.8.1	<b>Language:</b>	English (US)
<b>Platform:</b>	Linux	<b>Mod Related:</b>	No
<b>Expansion:</b>	Core Game		

#### Description

There is an error in the calculation of g-forces applied to kerbals.

When trying to do a high-g adventure, I created a rocket following an already tested approach of using multiple solids launching vertically.

However, on 1.8.1 there is an error which causes kerbals not to faint. Initially the rocket (which has about 10:1 TWR) imposes a 10 G load on kerbals (as seen on the G-meter and on the endurance bar in the portrait), but a few seconds into the flight, the G-meter goes down to 2.5 Gees, which apparently is what the kerbal pilot feels, because he recovers instead of fainting.

The issue was discovered in a modded game, and replicated in a stock one. The attached screenshot shows data from Kerbal Engineer Redux showing a G-meter indicating 2.5 gees and KER indicating a TWR of over 15:1 and over 150 m/s<sup>2</sup> acceleration. KER is there for informational purposes, and the bug was replicated on a stock game.

Version used is 1.8.1.2694 for Linux (downloaded from GOG). Test system is a Thinkpad X220 with 8GB RAM and onboard intel graphics.

#### History

##### #1 - 01/11/2020 05:42 AM - Anonymous

- File drag.jpg added

Air resistance is limiting your acceleration. Drag becomes quite strong around the sound barrier, 350 m/s.

If you had been accelerating continuously at 152 m/s<sup>2</sup> for the 5 seconds since launch, you would be going 760 m/s at the time shown.

Strictly speaking, KER is wrong to label 152m/s<sup>2</sup> as 'acceleration' because the number it shows is just thrust / mass; an aircraft in level flight at its top speed has zero acceleration, but KER shows the number corresponding to its thrust / mass there.

#### Files

high-g.png	744 KB	01/08/2020	kerman-space-systems
persistent.sfs	76 KB	01/08/2020	kerman-space-systems
drag.jpg	119 KB	01/11/2020	Anonymous