

## Kerbal Space Program - Feedback #9407

### Authority limiter override does not affect roll

04/22/2016 08:45 AM - Anonymous

<b>Status:</b>	Updated		
<b>Severity:</b>	Low		
<b>Assignee:</b>			
<b>Category:</b>	Controls and UI		
<b>Target version:</b>			
<b>Version:</b>	1.1.0	<b>Language:</b>	English (US)
<b>Platform:</b>	Windows	<b>Mod Related:</b>	No
<b>Expansion:</b>			

#### Description

Desc: The newly introduced option to configure the deploy authority of elevons effects pitch but not roll input.

Repr:

1. Load the attached plane, where the inner elevons have a negative authority of -100.
2. Use roll commands. The inner elevons will incorrectly counteract the roll from the outer elevons.

#### History

##### #1 - 04/22/2016 11:53 AM - sal\_vager

- Status changed from New to Need More Info
- Severity changed from Normal to Low

Hi Vycma, please explain how the authority control is not affecting roll.

On testing your vessel I can see that roll is being inverted with pitch, and that control surfaces are determining their direction from the CoM, as expected.

The control surfaces on your wings all have their pivot axis in front of the CoM, this causes them all to move the same way unless their control authority is inverted you can see this by adding some mass tot he front of the vessel, which will cause the pitch and roll of the elevons to invert.

Inverting the input inverts the input to the elevon, not individual axis.

##### #2 - 04/22/2016 01:12 PM - Anonymous

Well it is affecting roll, but it is not affecting roll as I would expect it. I inverted the input on the inner elevons to have proper pitch control, so that they behave similarly to the outer ones with regard to pitch.

When you decouple the payload, this inverted setup makes sense because the CoM shifts. Yet the CoM dependency causes the inversion to be counterproductive *with* the payload attached.

I think this is related to the other 'feature' here: <http://bugs.kerbalspaceprogram.com/issues/9406>

So most likely this may not be a bug either. Still the CoM dependency is in my mind not optimal. Not the position of the pivot axis should be decisive for how to rotate, but the outer edge of the control surface parallel to the axis.

The other option would be to remove the CoM dependency and give the player absolute control about pitching behaviour using authority limits.

##### #3 - 04/22/2016 02:12 PM - Anonymous

- File 20160422161117\_1.jpg added

Having added some mass in front of the plane, shifting the CoM far in front of the elevons, I still have to invert the authority limits on the inner control surfaces to get identical behaviour with the outer ones. So there also might be an issue related to those large elevons.

##### #4 - 04/22/2016 03:01 PM - Anonymous

- File 20160422165345\_1.jpg added
- File Spirit [Strategic].craft added

Digging deeper, I noticed that this is a long standing issue. I knew for a fact that this craft here worked properly in pre-1.0.

Now, although the inner elevons have not a significantly different longitudinal position with regard to the CoM than the outer ones, they essentially cancel each other out.

#### #5 - 04/23/2016 09:47 AM - Anonymous

- Status changed from *Need More Info* to *Updated*

- % Done changed from 0 to 10

#### To sum it up:

The authority limiters work as expected.

The CoM dependency of elevons does work as expected.

However the CoM dependency of elevons does **not** work as is **desirable**.

A certain not insignificant set of designs runs into issues where elevons counteract each other. They seem to be characterized by a **flying wing** property, meaning that the root of a wing seems to be in front of the CoM, whereas the elevons are behind it; or where a wing is split into **subwings**.

Here comes the connection to **authority limiters**: They are a **potential workaround** for the underlying issue, yet a **limited one**. Should the initial CoM change significantly during flight, a tweaked authority setting will swap from being a fix to being the issue.

*If* an additional option would exist that allowed the player to **disable the CoM dependency** of elevons, CoM shifts could be accounted for by design.

Yet, I still would consider this **sub-optimal**. Imho the **CoM dependency of control surfaces has to be reworked** to close the gap between the players design intuition and the actual flight performance.

#### Potential related issue:

<http://bugs.kerbalspaceprogram.com/issues/5172>

*Even after detaching affected elevons, rotating them by 180° around the z-axis and reattaching them, as well as substituting them for both crafts with new ones in up and down orientation they still rotate in wrong directions.*

#### #6 - 04/23/2016 04:36 PM - Anonymous

I'd recommend putting this issue back to normal priority. There definitely is something fundamentally wrong with flight controls.

#### #7 - 04/24/2016 05:28 PM - sal\_vager

- Tracker changed from *Bug* to *Feedback*

It's working as designed, but as it's not desirable to you this is really feedback, sorry.

What you want is the behaviour of KSP changed at a fundamental level, the dependency on the CoM cannot simply be disabled, there's no hidden feature to make that possible, this would require an extensive rewrite of a large part of the game that would effect all craft, not just your flying wing.

A workaround would be to not use combined ailerons and elevators, and to separate these controls, ensuring that they are not so close to the CoM to be affected.

#### #8 - 04/24/2016 08:21 PM - Anonymous

It is feedback and I would have changed the category if I could.

Everything in programming works as designed, including the bugs and they are undesirable to many of us. I'm fine if you don't give the player an option to disable CoM, it was just a suggestion.

This report however is different from the following duplicate, which describes imho a bug:

<http://bugs.kerbalspaceprogram.com/issues/9460>

If you consider this *angle dependent counteracting* not to be a bug, there is not much more I can add to convince you otherwise.

Well, there are workarounds for sure. To use a different combination is not one. All kinds of control surfaces are affected. As the bug seems to scale with craft size, reserving enough space is also questionable.

The consequence is that the player has to adjust the design otherwise. Authority limiters are a powerful option, yet limited as described. I would argue that you run into that bug rather often, as planes are usually designed with a CoL close to the CoM right in the affected margin, which assures maneuverability. Might it be a flying wing, a VTOL or a real conservative layout, e.g. the shown transport plane. It is counter-intuitive gameplay and in my opinion worth changing.

My point is just this: The control surfaces once worked fine and somehow during last year's development process it broke.

But the final decision is yours.

**Files**

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Authority roll bug.jpg	209 KB	04/22/2016	Anonymous
Furion.craft	268 KB	04/22/2016	Anonymous
20160422161117_1.jpg	309 KB	04/22/2016	Anonymous
20160422165345_1.jpg	246 KB	04/22/2016	Anonymous
Spirit [Strategic].craft	158 KB	04/22/2016	Anonymous