Kerbal Space Program - Bug #20847

Control surfaces suddenly become erratic after several minutes in flight.

01/07/2019 09:56 AM - Klapaucius

Status:	Acknowledged	**Start date:**	01/07/2019
Severity:	Low	**% Done:**	100%
Assignee:			
Category:	Bug Tracker		
Target version:			
Version:	1.6.0	**Language:**	English (US)
Platform:	Windows	**Mod Related:**	No
Expansion:	Making History		

Description

DESCRIPTION OF EVENT
After several minutes of calm flight with timewarp engaged, the plane suddenly became erratic. The control surfaces (FAT-455) started flapping back and forth with no input from me. While with timewarp, instability is not unprecedented, I have never in the past not been able to regain control by disengaging time warp.

This time, I disengaged timewarp and cut the engines, but I could not get the control surfaces to work properly. It seemed I finally regained control at the last moment, but it was not enough time to recover the dive.

VIDEO LINK
I have video of this, and it is probably much easier to understand what I am talking about if you see it. The link is here:

[[https://youtu.be/yvtIop-dEqQ]]

FURTHER DETAILS
While the video shows my original modded install, I did retest this on a non-modded install of the game with the same result.

Also, I then tried flying the plane without using timewarp. I had SAS engaged, and the plane was flying itself rather nicely. I pressed S to give it a bit of a nose up, and that seemed to start the whole process over again. The flaps started to fluttter, and nothing I could do (including turning off SAS) would allow me to regain normal control.

I built this plane over a year ago, and I have never had any issues with it until this latest KSP version (though I have not flown it for a while).

HOW TO REPLICATE (craft file attached below)

1. Take off from KSC with stability on.
2. Engage afterburners (action group 1)
3. Fly west (the direction is most certainly irrelevant)
4. Let plane fly itself for a bit.
5. Bug occurred at 7 Kerbal minutes into flight. I do not think there is a fixed number on this, but certainly there were no control issues during takeoff and first few minutes of flying in my tests.
6. Either plane will start to lose control on its own OR trying to adjust trim with WASD keys will initiate problem.

If anything is unclear, feel free to contact me at billkayaks@gmail.com. Thank you very much for your assistance.

History

#1 - 01/09/2019 05:02 PM - Vycma

I noticed something similar with my crafts years ago and filed some reports (https://bugs.kerbalspaceprogram.com/issues/9460 and https://bugs.kerbalspaceprogram.com/issues/9407), but it doesn't seem to have been addressed.

It seems to have something to do with how the pitch / roll / yaw direction of a control surface is determined based on the distance and orientation of the control surface to the center of mass (which changes during flight), with consequences for SAS and manual override, both of which naturally do not take this dependency into account, leading to erratic flight behaviour.

EDIT

Nope, behaviour has not changed since. All things being equal, some control surfaces closer to the COM will pitch in the opposite direction than those

further away.

#5 - 04/22/2019 05:04 PM - Vycma

I opened a report to the possible underlying issue here:
https://bugs.kerbalspaceprogram.com/issues/21949

#6 - 02/15/2020 05:49 PM - victorr

- Status changed from New to Acknowledged

- % Done changed from 0 to 100

#7 - 02/20/2020 04:02 AM - Anonymous

- File 20847.craft added

I see this as a case of bug #22932 (maybe also #21949)

I drained 20% the fuel from "Flying_Wing_Stanislaw" (attached as '20847.craft').
Trim fully pitch-up, elevons should raise.
Pump fuel from wings to center-aft nacelle;
this puts the CoM very close to the rotation axes of the elevons.
One elevon flips direction.

My only suggestion for a work-around is to rotate the elevons in the plane of the wing, so their extended hinges are behind the CoM.

Files

Flying Wing Stanislaw.craft	64.4 KB	01/07/2019	Klapaucius
20847.craft	85.3 KB	02/20/2020	Anonymous