

Kerbal Space Program - Bug #7669

Quirky periodic "twitch" in SAS stability algorithm for pitch

03/30/2016 06:39 PM - bewing

Status:	Confirmed	Start date:	03/30/2016
Severity:	Normal	% Done:	10%
Assignee:			
Category:	Physics		
Target version:			
Version:	1.0.5 and earlier	Language:	English (US)
Platform:	Windows	Mod Related:	No
Expansion:			

Description

When flying a plane with SAS stability turned on, about every 5 to 30 seconds the pitch control surfaces will instantly swing to maximum deflection -- then they come back under control again. This obviously causes the plane's pitch to change and the pitch control surfaces then try to recompensate for the movement. The instant maximum deflection swing occurs despite any actuator speed limits. The bug does not seem to affect any other axis.

This is a longstanding issue since at least ver 1.0.4.

History

#1 - 04/09/2016 07:18 PM - swjr-swis

- File screenshot31.png added
- File screenshot32.png added
- File screenshot33.png added

KSP 1.1.0.1196 x64 Win
KSP 1.0.5 Win

Confirming that this happens both on 1196 and on 1.0.5. Timing it with the example craft, it occurred about every 30-40 seconds for me. It happens very fast, too fast to see the full deflection when on a good framerate, but the stabilization wobbling that follows for a second or so is clearly noticeable. Also, if you enable the aero forces in flight (through Alt-F12, Physics, Aero), the sudden wobble in the arrows will be very clear.

Whatever this is, it also causes a sound, like a small far-away explosion. I kept changing sound settings, I tracked it to the ambience sound: with ambience sound set to 0% it is not audible, but with everything except master and ambience set to 0%, you can still hear this small explosive/venting sound every time the glitch happens.

Also, but this doesn't happen quite as regularly: with some regularity, and the lower the altitude the more often it seems to happen, at the same time as the pitch deflection and the sound, sometimes small isolated exhaust 'puffs' appear from a good way ahead of the craft. As if the engine had shortly teleported ahead a few hundred meters for a split second then back again, and the next second the craft is 'flying by' that spot and the few exhaust particles that were emitted there. I don't know how else to explain this, but pay attention and you will see. When they appear, it's always right after the twitch and the sound. I managed to get a few on screenshots, I include them here.

#2 - 04/10/2016 02:47 PM - bewing

- Status changed from New to Confirmed
- % Done changed from 0 to 10

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Amazing catch! I never realized that those little cloud things were related to this! I also never noticed the sound, either. Awesome debugging skillz, swjr_swis. Thx for the added info.

#3 - 04/11/2016 03:44 PM - mjn

- File Screenshot from 2016-04-11 16-23-28.png added

I believe this happens when the "floating origin" is shifted. I created a small addon to test this, if you watch the value of "FloatingOrigin.Offset" you'll see whenever you hear the "tshh" noise the value changes.

Here's the link to the source: <https://gist.github.com/mjn33/bc80d38b036923c2c6a4c4fbd6ed427b>

Here's the link to a pre-built version of that:

<https://gist.github.com/mjn33/bc80d38b036923c2c6a4c4fbd6ed427b/raw/0e0f4403cf0f772a03bc6776eb54d4918ca0c3c4/VesselModuleMonitor.zip>

#4 - 04/13/2016 09:17 AM - bewing

- File s1.craft added

This plane exhibits the behavior much more often -- at 18km altitude, mach 2, level flight.

#5 - 07/23/2016 07:20 AM - TriggerAu

- Project changed from KSP Pre-Release to Kerbal Space Program

- Category changed from Aerodynamics to 281

- Platform Windows added

Moving to KSP as still valid

#6 - 08/05/2016 11:01 AM - orcaman98

It's the sneezing!!! Again, from the comments on that forum post! Having a laugh, Trigger? I'm on a roll.

Files

t1.craft	42.9 KB	03/30/2016	bewing
screenshot32.png	2.13 MB	04/09/2016	swjr-swis
screenshot31.png	2.17 MB	04/09/2016	swjr-swis
screenshot33.png	2.13 MB	04/09/2016	swjr-swis
Screenshot from 2016-04-11 16-23-28.png	2.08 MB	04/11/2016	mjn
s1.craft	86 KB	04/13/2016	bewing