Kerbal Space Program - Feature #447

Make A.S.A.S. tunable

03/18/2013 11:26 AM - MBobrik

Status:	New	**% Done:**	0%
Severity:	Normal		
Assignee:			
Category:	Gameplay		
Target version:			
Platform:		**Mod Related:**	No
Expansion:			

Description

As far as I understand it, the SAS's PID controller constants are now fixed and thus in most cases out of tune with th ship's response.

In small and light ships, or medium-sized ships with lots of RCS thrusters (and empty tanks), SAS overshoots so badly, that it sometimes never stabilizes.
And when the ship is only slightly wobbly (large ships, or anything with a docking port naturally are) ASAS+RCS action will almost always cause undamped oscillations, that, even when they don't break the ship apart, make ASAS+RCS all but useless.

All this could be solved by allowing the user to do some loop tuning on the PID constants by clicking on ASAS would display GUI window where you could, within certain limits, change the PID constants.

For example you could reduce the overall force to prevent the ship from overshooting hugely when it spent fuel, decoupled stuff, etc... and is now much lighter as it was initially. Or to bring the response time out of tune with ship's wobble resonance frequency so that it can dampen out oscillations instead of creating and amplifying them.

History

#1 - 03/19/2013 12:14 PM - Mr_Orion

I believe this is planned with Tweakables.

#2 - 03/19/2013 12:30 PM - MBobrik

Is there a list of what exactly will be tweakable ? clicked on the link in Planned features but that leads nowhere.

#3 - 05/04/2013 10:07 PM - umbralraptor

ASAS is tunable, but only if you edit the part.cfg file manually, and restart KSP. An in-VAB tuning is needed, though.

#4 - 05/12/2013 10:30 PM - Ruedii

A good stop-gap measure (to prevent ASAS from causing control flutter, ripping apart space craft) would be for ASAS to slowly increase the control until it neutralizes the undesired rotation and pushes it back towards the original center, much like if you are using the keyboard in precision mode.

It also shouldn't override controls unless you completely stop the motion towards the desired nose angle, or you push it away from the desired nose angle.