

Re: SpaceShipOne News Coverage just a little rough on the edges

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From: Peter Stickney (*peter_at_Mineshaft.local*)

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In article <28326d49.0410251017.2600d44@posting.google.com>,
d_schneider@emulex.com (dave schneider) writes:

> *Pat Flannery* <flanner@daktel.com> wrote:

> [...]

>>

>> *They already know that it has control problems due to its excessive*

>> *dihedral; frankly it's an historic aircraft and shouldn't be risked-*

>> *it's time to move on to an improved version.*

>

> *I've heard that a change approved by their aerodynamicist was*

> *effective in dealing with the control issue on the 2nd prize flight.*

> *I still haven't found out what that change was, although some coverage*

> *has apparently said it was in the afterbody.*

It was more of a trajectory change. The initial flight profile of SS1 was pretty simple – light the rocket, and point it straight up.

That's all well and good, but it seems that SS1 isn't particularly stable in roll at Cl (Lift coefficient) = 0.0, and it doesn't have a whole lot of roll control authority at $Cl = 0$, either.

So, the big change was to not pitch up fully vertical, and maintain a touch of lift on the wings as long as possible. That would cut the apogee down a bit, 'cause the vertical velocity vector would be a fraction of the total velocity vector, instead of the whole thing, but they had more than enough rocket burn to make up for the difference.

Another Rutan Solution – a simple fix to a point problem, and very clever.

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Pete Stickney

A strong conviction that something must be done is the parent of many bad measures. -- Daniel Webster