

Re: Columbia question (includes some general ascent profile questions)

## Re: Columbia question (includes some general ascent profile questions)

---

*Source:* <http://sci.tech-archive.net/Archive/sci.space.shuttle/2006-06/msg00330.html>

---

- *From:* [dg411@xxxxxxxxxxxxxxxxxxxxxx](mailto:dg411@xxxxxxxxxxxxxxxxxxxxxx) (Andre Lieven)
  - *Date:* 23 Jun 2006 03:51:21 GMT
- 

David Ball ([davidbemail-1q04@xxxxxxxxxxxxxxxxxxxxxx](mailto:davidbemail-1q04@xxxxxxxxxxxxxxxxxxxxxx)) writes:

On 22 Jun 2006 03:50:36 GMT, [dg411@xxxxxxxxxxxxxxxxxxxxxx](mailto:dg411@xxxxxxxxxxxxxxxxxxxxxx) (Andre Lieven) wrote:

David Ball ([davidbemail-1q04@xxxxxxxxxxxxxxxxxxxxxx](mailto:davidbemail-1q04@xxxxxxxxxxxxxxxxxxxxxx)) writes:

As I recall, the doomed Columbia flight was one that did NOT go to the station. Now, I'm not an aerospace engineer, but this brings a question to mind. Has there been any research into whether the ascent profile/angle would have been different enough, if Colombia was going to the station, for the foam to have missed the RCC panel if it came off at that point (as determined by mission elapsed time or altitude or speed or whatever is appropriate) in the flight?

In other words, was all this time spent fixing a problem that wouldn't cause the loss of a shuttle if it happened on an ISS mission because the different angle of wind flow at that point in the mission would cause it to miss the RCC panels?

Hopefully this isn't a totally silly question.

Well... it is. The air doesn't care if you're flying north, west, or north-west. It continues to flow past your craft the same way.

Having been a private pilot in my younger days (when I could still pass the physical), I know what you mean, but we're talking about

Re: Columbia question (includes some general ascent profile questions)

Re: Columbia question (includes some general ascent profile questions)

different things.

Indeed. Yours doesn't apply to the Shuttle.

Air definitely cares about your craft's movement relative to the air.

However, that's *not* what you asked about, which was flying in a somewhat different direction *through* the air, to get to an orbit with a different inclination.

Otherwise I wouldn't have had to practice things like accelerated stalls and spin recovery.

Have you noticed that Shuttle stacks don't do any of those ?

Actually, what I was talking about was what you would call angle of attack for an aircraft wing. Of course, the shuttle stack is not an aircraft wing, but it does maneuver through the air at different angles as necessary for the flight profile.

Then, your question should have been about flying different kinds of profiles, in terms of what parts point out where, during boost phase, and not about flying to a different orbital inclination, for which the difference in air movement during boost phase is inconsequential.

Did the flight profile for a different destination change the angle of air flow across the stack, when the piece of foam came off, enough to make the foam hit the RCC rather than scrape some tiles on the bottom or miss the shuttle entirely.

If that was a question: No.

That far into the ascent, does the stack always have a constant angle relative to the air regardless of where it's headed?

In terms of airflows near to the Shuttle stack, yes.

Re: Columbia question (includes some general ascent profile questions)

Re: Columbia question (includes some general ascent profile questions)

Also, does the flight profile for a particular destination determine how long it spends in lower, denser air during ascent, and does that mean that some events, like exceeding mach one, take place in denser air?

No.

I'm guessing that the answer to this might be yes unless all of the maneuvering for orbital parameters takes place later in the flight.

Which they do. In terms of causes of airflow around the boost phase stack. Thats all tactical, while your question would demand more of strategic differences. Like launching Shuttles from Mars rather than Earth.

Andre

.