Re: Skylon SSTO

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- *From*: John Schilling <schillin@xxxxxxxxxxxxx>
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On 28 Dec 2006 06:49:52 −0800, ianparker2@xxxxxxxxx wrote:

> Henry Spencer wrote:
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> > There would be an added problem for him, as a US citizen, running the
> > technical details of a foreign launcher project: he'd need US−government
> > export−control approval for almost everything he did. Mind you, he can
> > afford the sort of lawyers needed to move things through Foggy Bottom
> > expeditiously, but even so, it would be a frustrating complication. If
> > he did want to invest in a launcher project, almost certainly it would be
> > a US one, just to avoid that mess.
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> Have you ever considered that perhaps other countries might go ahead
> without the US, or that if Bill Gates was REALLY interested he would
> adopt a flag of convenience nationality. I think there would be quite
> a few countries queuing up!

Queing up for what? The opportunity to put their flag on a rocket someone else builds, and collect a bit of cash for the "privilege", sure. But the opportunities that actually come to pass, are the ones where *both* parties get something out of the deal. What does Bill Gates, hypothetically, get out of becoming a Liberian citizen and putting a Liberian flag on his hypothetical rocket?

The United States of America is, whether you chose to believe it or not, the most convenient nation by far in which to build and launch a private rocket. It is in particular a nation lavishly supplied with rocketry expertise and infrastructure, in which most any piece of hardware needed to build a rocket can be bought off the shelf and where any specialized talent or service can be hired at competitive prices.

It is also a very wealthy nation, and in particular a nation with lots of medium−large concentrations of private wealth. That's quite important, because wealth that is at all beholden to taxpayers or

stockholders is not usually available to speculative high−risk ventures and almost never to ventures where the payoff is, "because it's cool!". If you're looking for someone who can say, "Here is a hundred million dollars, and it is *mine* and I can do anything I want with it!", you want to start looking in the United States.

And the United States of America is, in fact, a country with a government that is remarkably supportive of its citizens building and launching their own spaceships. As one of Bill Gates's close associates recently demonstrated. Yes, there is paperwork to be filled out, to satisfy concerns that maybe this big rocket you are building might fall on a city occupied by millions of registered voters. Boo hoo if you can't handle it; you're going to have to deal with that paperwork *wherever* you go, and the US version is known to be trivial compared to the difficulty of building an orbital launch vehicle in the first place.

The one difficulty that Henry alludes to, is that the United States has some unique obstacles to international collaboration in rocketry. And yes, ITAR Delenda Est. But A: the United States doesn't need to collaborate internationally in rocketry, because it's got everything it needs at home, and B: if some bit of foreign technical expertise would be useful, it would almost certainly be easier to import that bit, heck, to import the entire Skylon design team, than to export Bill Gates and his share of Microsoft, on top of which C: there is no magic to Skylon that would motivate anyone to go to all the trouble when there's a dozen equally good proposals on the table closer to home.

The ITAR problem is a bit more significant when you want to couple foreign money with US technical expertise, as Richard Branson is learning. But even then, the problem is not intractable.

And the "Hey, let's all go be Liberians so nobody can make us fill out nasty evil paperwork before we fly our rocket!" approach, is quite ludicrous. The technical expertise to build rockets, does not exist in Liberia. The countries that make you fill out nasty evil paperwork before they let you build a rocket on their turf, demand *more* paperwork before they'll let you ship a bunch of rocket parts off to Liberia. And no, you're not going to get an entire self−sufficient community of rocket−builders to move to Liberia.

> The axis of space power may well be shifting. Europe, Russia and even China and India taken together constitute more weight today than the US.

Define "weight".

Then justify the part where Europe, Russia, China, and India's "weight" can be taken together, when they constitute at least half a dozen seperate powers that do not in fact get together in secret meetings and say to one another, "We are not the United States, and therefore shall arrange for all our resources to be combined into one well−oiled Not The United States Space Program!".

What they actually do is say, each of them individually, "How can I get these other saps to pay a bunch of our rocket scientists, so we can go use our own tax dollars elsewhere, but above all else make absolutely sure that none of our tax dollars get used to pay any of their rocket scientists?"

Since, as noted earlier, the opportunities that actually come to pass are the ones that benefit everyone involved, most of the opportunities for potential Anglo−Franco−Russo−Sino−Indian space cooperation, fall by the wayside. The remainder, usually involve someone miscalculating and spending the duration of the program trying to find a way to weasel out of their end of the deal.

This isn't just a foreign thing, either. The United States does the same thing when it tries to collaborate internationally in space. But when the US takes all its marbles and goes home, there's enough of a collection of marbles to build spaceships even if nobody else will play.

> There is growing collaboration between Europe and Russia with Soyuz launches from Kourou from 2009.

Too early to tell who got the short end of the stick on that one, but we should see someone try to restructure the deal to their own advantage in the next few years, and threaten to pull out if they don't get their way. Probably the thing will muddle along and everybody will get enough of their way to keep playing, but, well, Big Whoop.

We started this discussion trying to find a way to finance a 21st−century reusable launch vehicle that would truly revolutionize space travel. Now you're all enthusiastic about the Super Coordianted Not The United States Space Program launching a fifty−year−old rocket from a thirty−year−old spaceport?

The United States just launched a Minotaur from Wallops last month, and barely considered it worth a press release. Certainly didn't require a massive international collaboration.

> NASA has been characterized by growing complacency.

Yes, but NASA could go out of business tomorrow, and the United States would *still* be the eight hundred pound gorilla when it comes to space operations. In fact, there's a substantial minority opinion here that it would be a *good* thing for NASA to go out of business tomorrow.

> In fact with the reductions in the scientific space program Europe is the leading scientific space power.

I think you're confusing the trend with the baseline, here: The United States is still the eight hundred pound gorilla when it comes to space science, as well. And will be for many years to come, even if every proposed cut is made here while the foreign space scientists get their entire wish list.

Also, I don't think you've thought things through when it comes to "scientific space power". Science, is a *use* of space power, not a *source* of space power. A perfectly legitimate use, but of little practical value in the short term.

And in the long term, the best way to get lots of good space science done is to devote your short−term investments to space launch, space operations, and space infrastructure development. Those, are the actual *sources* of space power, which once you've got you can use for science or whatever else suits your fancy.

> The real question is though would a launcher be a good use of money? If it can be made to work cheaply it would be. Anyone would be ill advised to invest major resources at this point in time. I tend to feel that Bill would probably be more interested in my pet project − the Von Neumann machine.

When has Bill Gates ever expressed the slightest interest in building a Von Neumann machine?

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*John Schilling * "Anything worth doing, *
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