

NASA PRIZE CONCEPT (2009)

Title of Challenge:

Controlled Flight Challenge

What is the objective of the prize challenge?

Get at least 1 human above 25,000 m for 60 seconds and return them safely to earth in under 1 hour launch to landing and 30 minutes or less from launch to 25 kilometers.

What milestone or performance measurement would determine the winner?

The vehicle must reach at least 25 kilometers, stay above that mark for 1 minute, then make a controlled directed landing within 100 meters of the launch point, while carrying at least one adult human being. The vehicle must make this entire trip in less than one hour, launch to landing, and must achieve 25,000 meters altitude within half an hour of launch. Determination, if there were more qualifiers than available awards, would be closest landing to launch point, and possibly a time criteria - though fast times implies high acceleration which may not be what is best.

What is a suitable cash prize amount or non-monetary reward for the winner?

To promote the widest range of participants and options, this Challenge should be structured to provide 10 equal awards for the first ten competitors who meet the above requirements. Each award should be in the range of \$4-15 million. That is well over the current IPP budget, but offering such a prize would fuel a wide range of vehicle designs and technology that could lead to extended altitudes/ranges.

What is the format for the challenge?

Drawing on the NGLLC experience, this would likely be a multi-year competition where teams would be able to file for qualifying flight windows. It's unlikely that all awards would be present any one year, but until there are more qualifications than remaining awards accuracy requirements would just be the 100 m. This is the incentive to qualify early. Teams are free to re-qualify within a given award year if they feel they can improve on their accuracy. Once awarded, a team can not re-qualify in subsequent years with the same vehicle design.

What is the timeframe for this challenge?

I expect that teams would form and join throughout the life of the competition. It may not be the early joiners who win the awards. Getting vehicles flying and qualified may take several years. If the requirement to carry a pilot is deemed excessive burden, the competition could be run without an onboard pilot, but in such a case the awards should be at the bottom end of the range (i.e. not more than \$4 million each).

What type of competitors do you expect?

This Challenge would likely draw many of the existing teams that applied for the

NGLLC and would inspire new teams inspired by them. I expect it would mostly be small companies, Universities and small groups organized as non-profits.

What area of NASA's work does this challenge address?

This addresses the launch vehicles, spacecraft, flight operations and safety areas as well as developing technologies and procedures that can lead to significantly reduced flight operations for surface to LEO transportation.

Which, if any, national or global needs does this challenge address?

This would certainly address Transportation needs and perhaps international co-operation if non-American teams were permitted to fly.

Would this challenge possibly enhance commercial opportunities and in what areas?

The challenge would enhance the commercial spaceflight opportunities by incentivizing a significant number of new players looking at advance transportation options and technology as a stepping stone to the development of SSTO capabilities.

Are there any other agencies or external organizations with a potential interest?

Such "pop-up" capabilities may be of potential interest to the Military.

Submitter

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Date: 08 Nov 09