



## Traxxas speeds up their designs with T-Splines

>T-Splines helps designers meet challenging aesthetic requirements and project deadlines for complex vehicle body shapes.

<b>Company:</b>	Traxxas
<b>Industry:</b>	Designers and manufacturers of hobby class radio controlled cars, trucks, and boats in both nitro and electric categories.
<b>Headquarters:</b>	Plano, Texas
<b>Website:</b>	<a href="http://www.traxxas.com">www.traxxas.com</a>

“With T-Splines, I can experiment with form design by pulling and pushing on the surface way faster than with NURBS. With this much speed and flexibility, I have more options to present when my designs are evaluated.”

Jaime Barajas, Product Designer

### The challenge

As a product designer for Traxxas, one of Jaime’s responsibilities is to develop styling concepts and designs for his projects throughout the year. Each project for a new radio controlled car or boat has to be completed under tight deadlines. As part of the creative process, Jaime presents different designs, either pencil sketches or 3d models, to allow the team to review the strengths and weaknesses of each one. The challenge is to present several choices in the least amount of time so that a clear direction can be taken for the project.

After a design is chosen, each car or boat is modeled in CAD and then manufactured in polycarbonate plastic. The design has to be aesthetically pleasing to appeal to a wide customer range and also meet stringent engineering and manufacturability requirements. The surface shapes created in CAD have to be smooth and seamless.

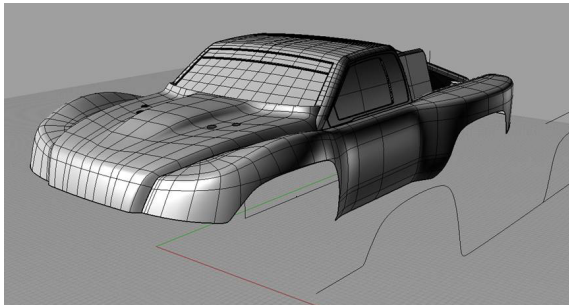
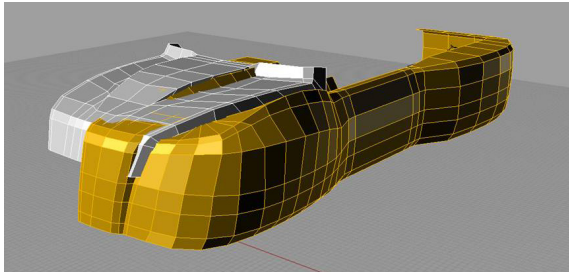
### The solution

Jaime has been using T-Splines since version 1.0, although at the beginning, incorporating T-Splines in his design process was challenging. Most of the designs he saw on the T-Splines web site were very organic, while he required sharp lines and corners in his designs.

Two things significantly increased his use of T-Splines: first, the realization that smooth T-Splines surfaces can be mixed with regular NURBS surfaces



Slash 4x4 – 1/10 scale 4WD brushless motor short-course truck.



in a model; and second, the significant increase in functionality released in T-Splines v2. The new feature in v2 that had the greatest impact on Jaime's work was the ability to toggle between seeing the smooth T-spline surface and a boxy mesh representation of the surface. This new way of viewing the model was a real breakthrough, as it allowed him to visualize more clearly and quickly what the final shape was going to be.

"I can make changes to the model in box mode just by creating and pulling lines at blazing speeds, and it allows me to experiment with forms that will give me further ideas."

The 'Slash 4x4' truck model displayed in this case study represented Jaime's most recent challenge, and T-Splines made a critical difference in meeting the deadline and all the design requirements.

Where T-Splines has really made a difference for Jaime is the ability to create a "hybrid model" that mixes T-Splines with regular NURBS surfaces. The easily modifiable T-Splines surfaces are used for the smooth aerodynamic design of the car body, while the NURBS surfaces can be used to represent the fixed defined reference surfaces.

Jaime can get the design exactly as he envisions it, and pushing and pulling to mold the T-spline surface is much faster than making lines to create NURBS surfaces. He can quickly respond to design change requests, even if they come just hours before the deadline.

On a typical design project, adding T-Splines to the process has reduced the design time from weeks to days, and has allowed him to present more design options for review.

## Future direction

The 'Slash 4x4' project was a great success. In the February 2010 issue, *Xtreme RC Cars* magazine reviewed the car and says: "The new body looks awesome."

T-Splines has become a standard part of the design process at Traxxas, helping Jaime be more innovative and productive. In several planned projects, he foresees using T-Splines for almost 100% of the workflow from concept to final design.

## Learn more

To learn more about T-Splines and how it can help accelerate and improve your design process, please visit [www.tsplines.com](http://www.tsplines.com)

To learn more about Rhino, please visit [www.rhino3d.com](http://www.rhino3d.com)