LOCKHEED MARTIN

SENSITIVE PAYLOAD SHOCK ABSORBER

[cryptone.org]

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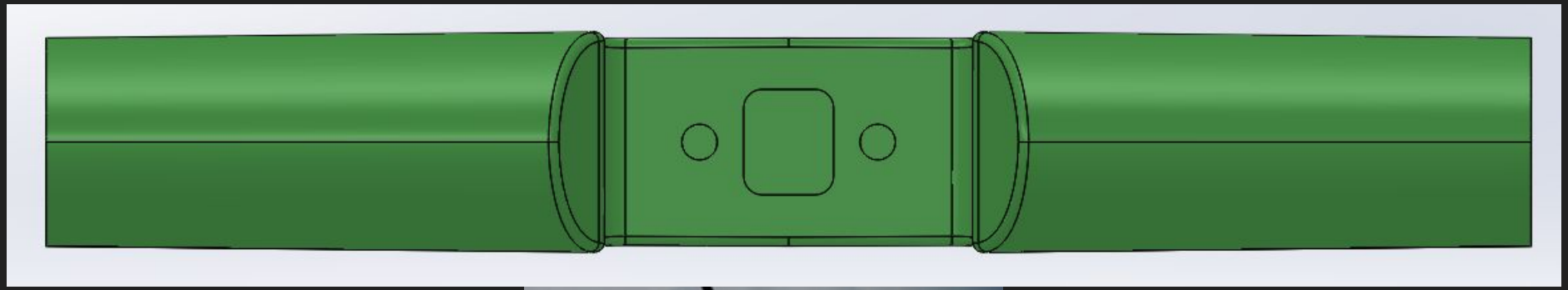
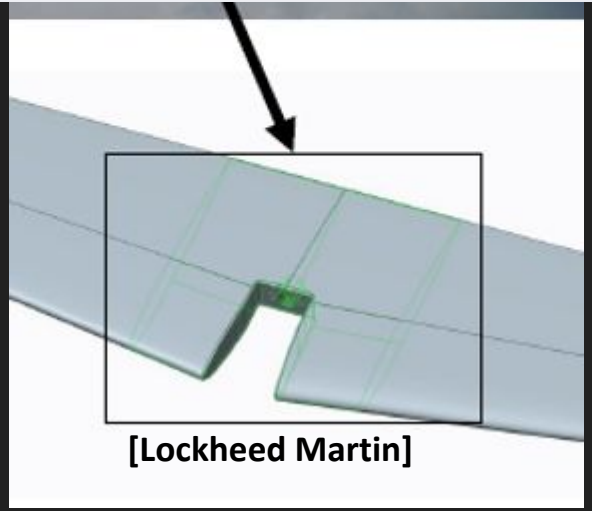
Design Background

- Current issues
- Redesign focus
- Goal

The Lockheed Martin Desert Hawk III is a small drone used for surveillance

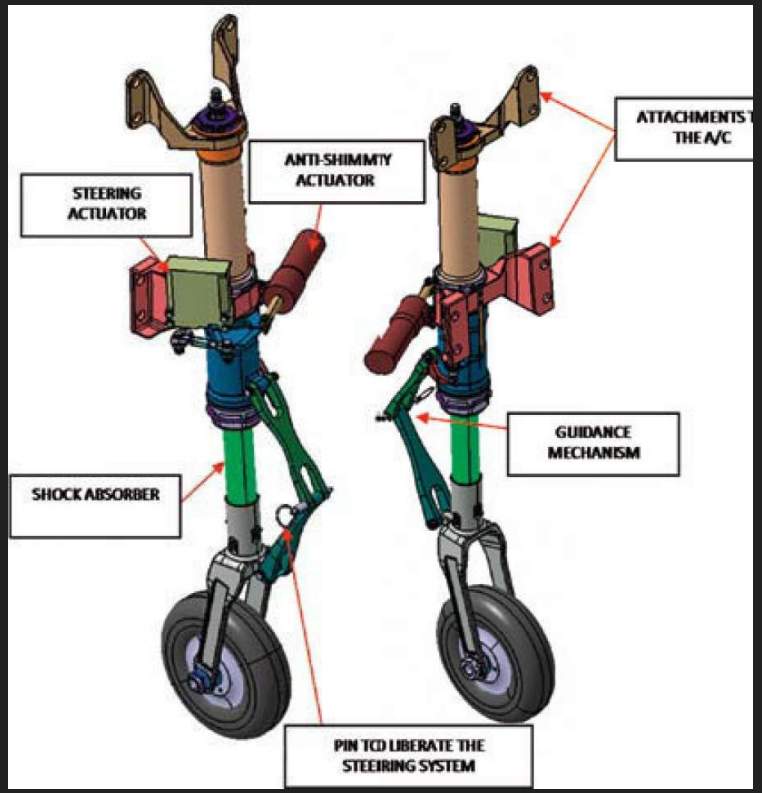
Desert Hawk III’s current sensitive payload shock absorber





[Lockheed Martin]

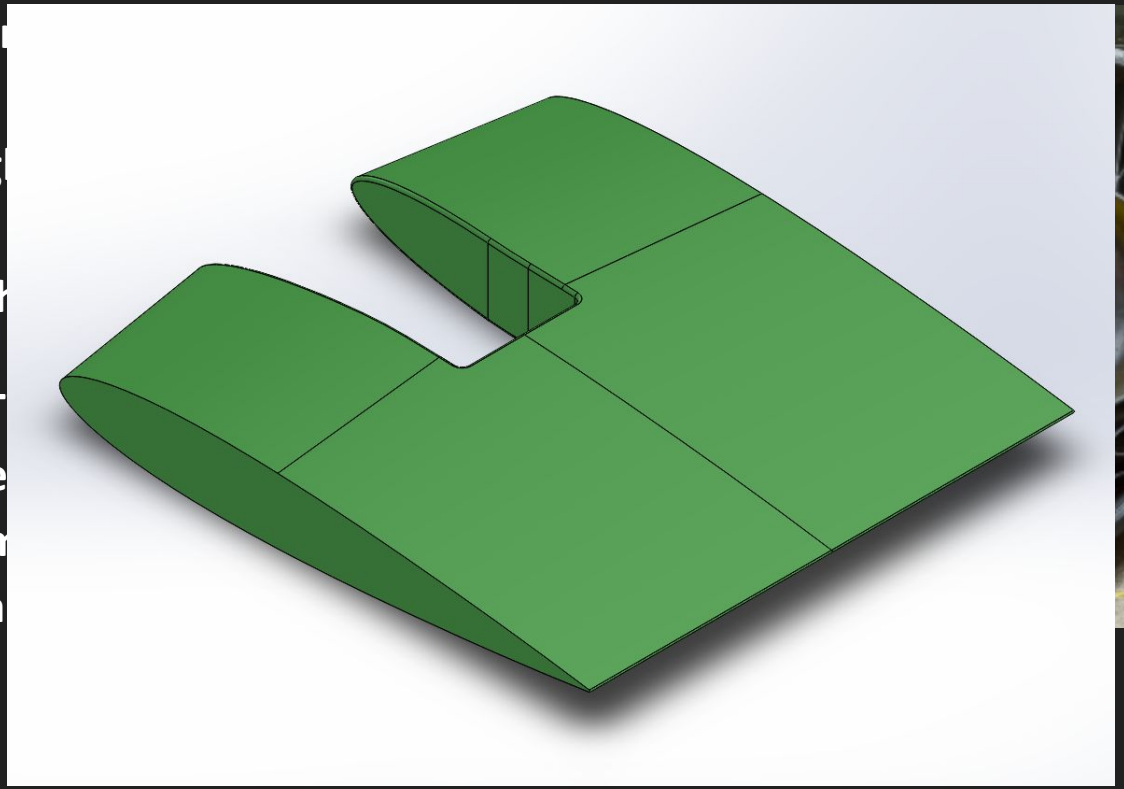
Existing Solutions

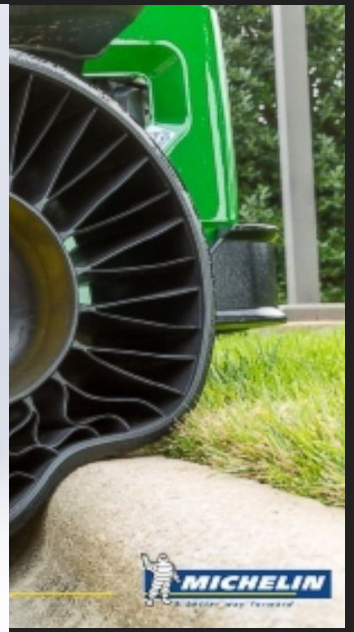


Design Process

- Inspiration fro
  - Flexible
  - Lightweig
  - Durable
  - Carries a h

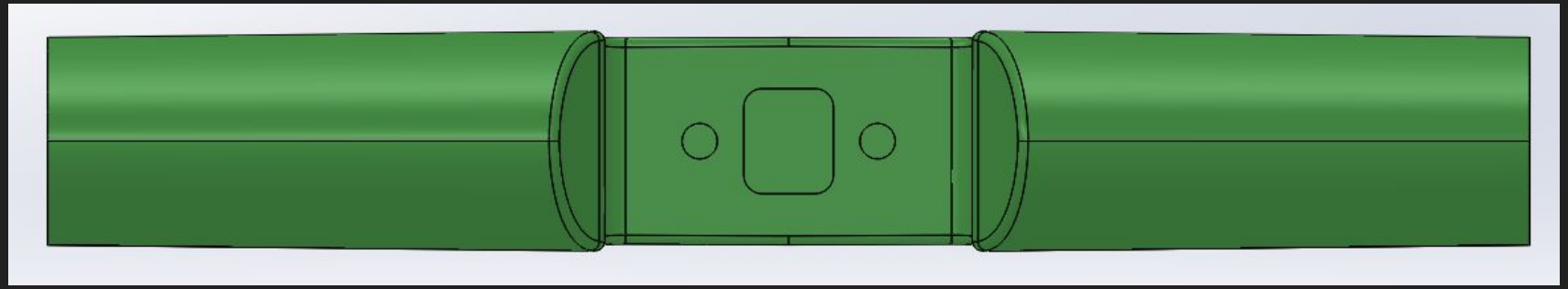
- "MICHELIN X T
  pneumatic tire
  costly downtim
  penetrations a
  (Michelin)



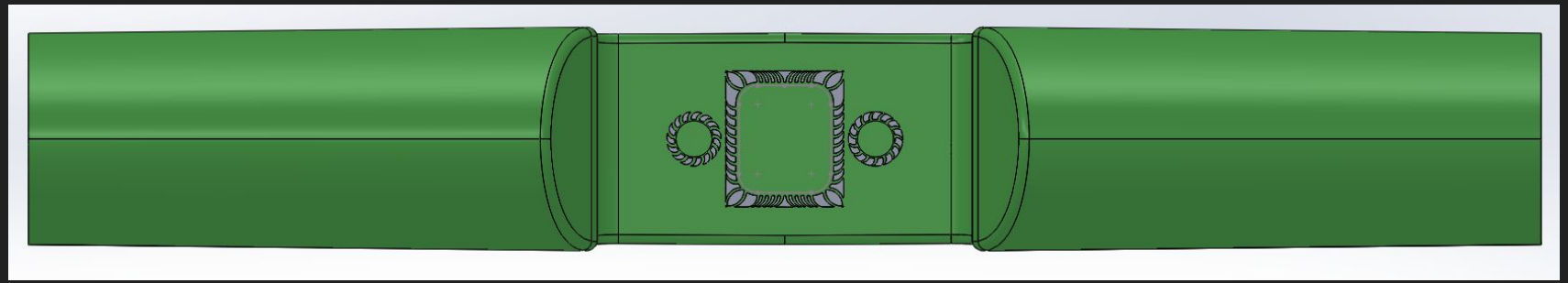


Design Process

Connector holes: Before

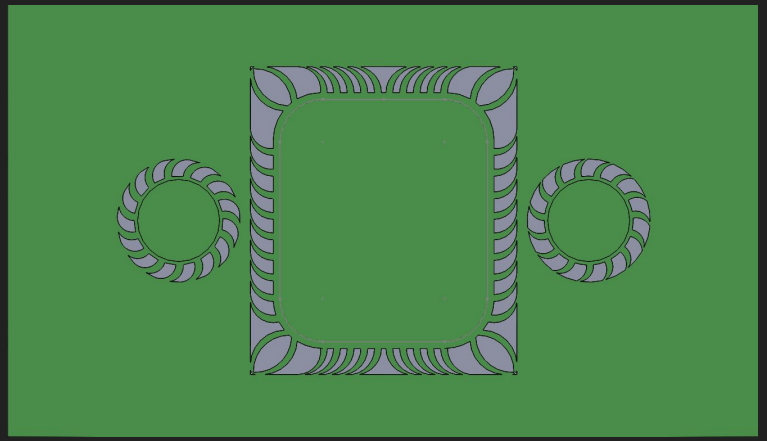


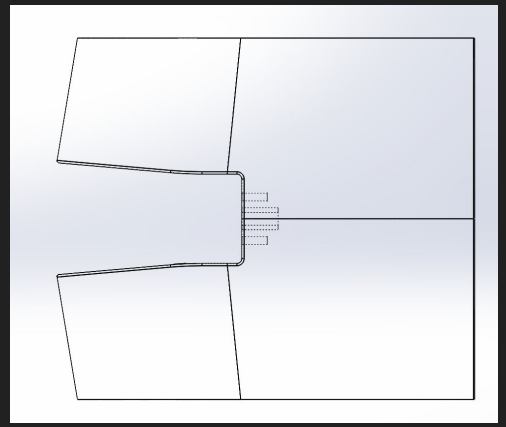
After:

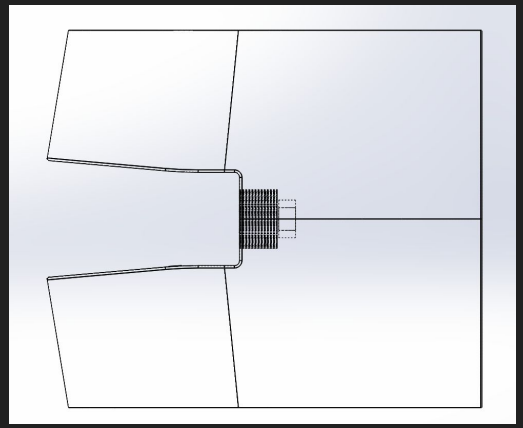


Design Process

Integration of airless tire design into connector holes:

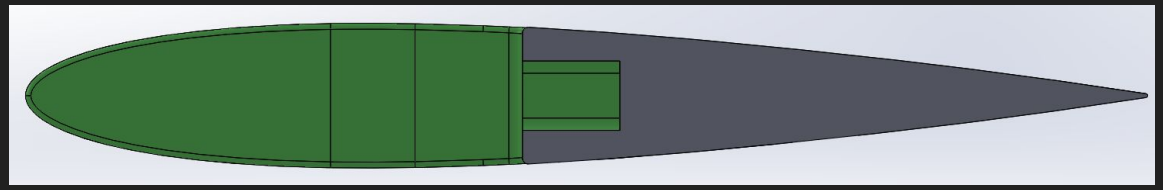


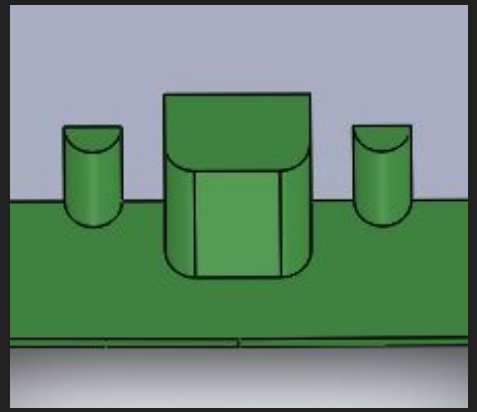


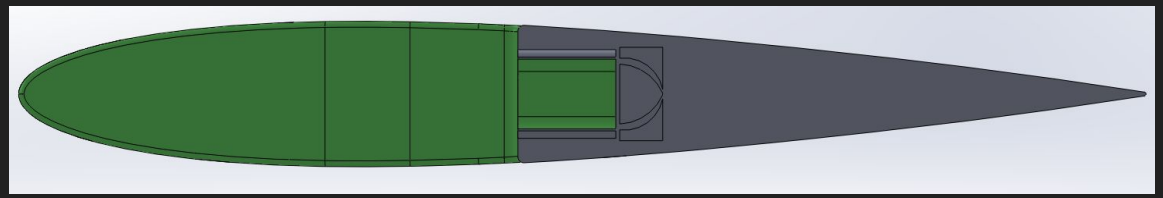


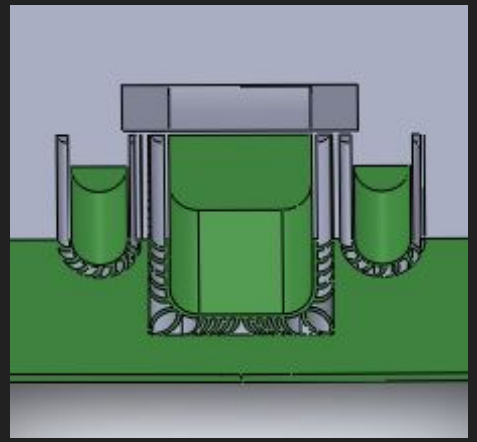
Design Process

Section views:

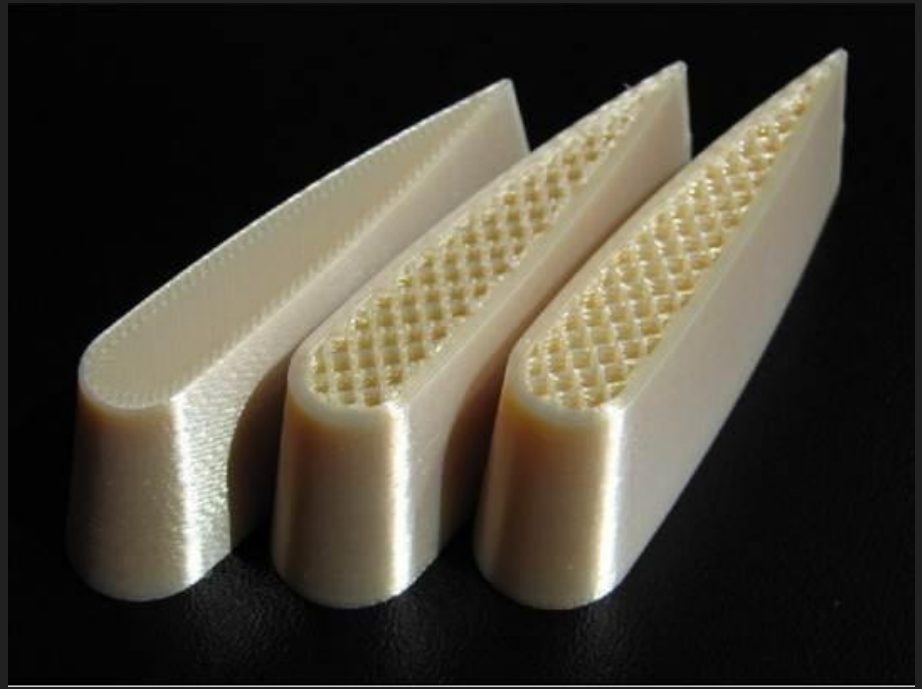








3D Printing



3D Printing

What makes our version better?

- Distributes the payload across a larger area of the UAV
  - Originally was burden of the anchor points (connector holes)
- Standard diamond body design makes the entire area lighter

Difficulties

Solidworks Model Complications

Understanding the Objective

Learning How a UAV Operates and Lands

What We've Learned

Learned New Tools in Solidworks

The Impact that Lockheed Martin has made

The Importance of UAVs

Citations

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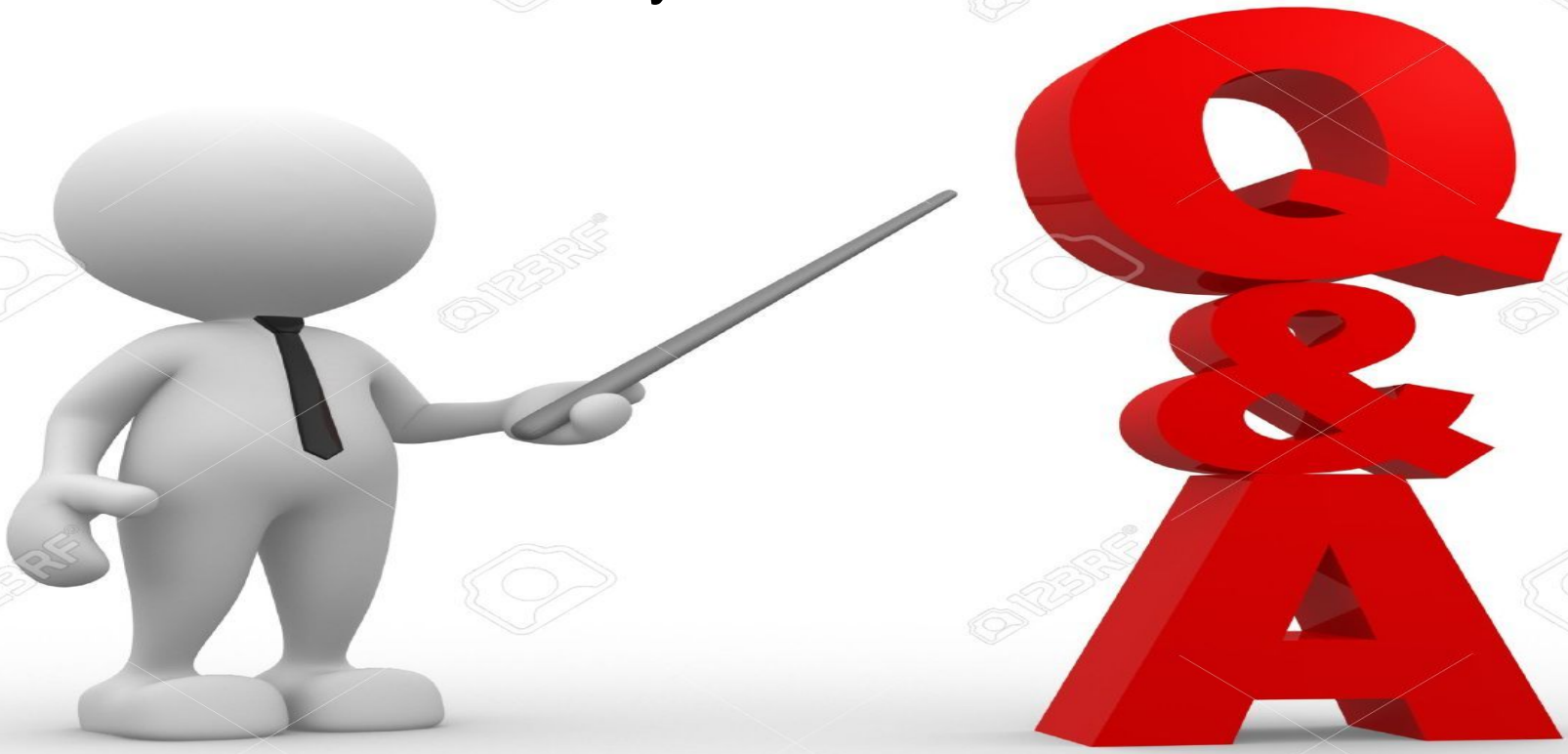
"Rubber-like." *Rubber-Like Materials for 3D Printing*. Stratasys, n.d. Web. 25 Apr. 2016.

Any Questions?



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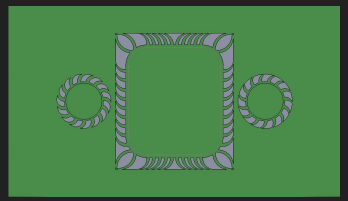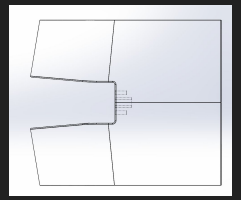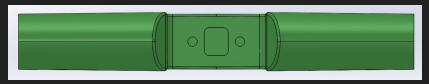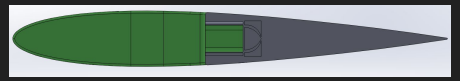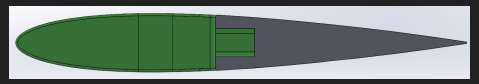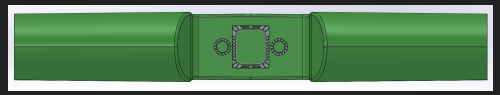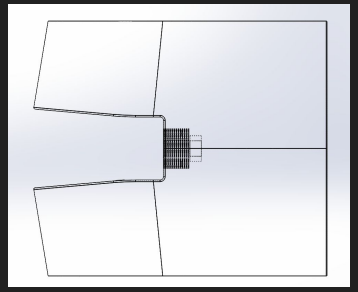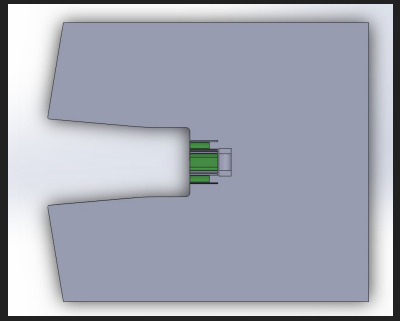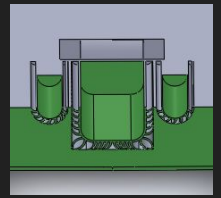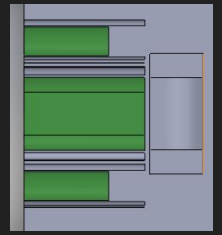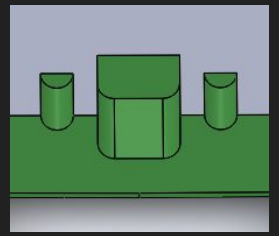
Picture References