

# Section Begins Suitcase Rocket Design & Build

*By Ken Philippart*

The Greater Huntsville Section kicked off a hands-on project to design, build and successfully fire a safe, reusable and portable rocket engine demonstrator for use in aerospace education and community outreach activities. This demonstrator is colloquially known as a “suitcase rocket” since it is packaged in a carrying case.

The project has multiple objectives including understanding basic rocket propulsion systems, acquiring design, fabrication, and operational skills, understanding financial and schedule constraints and how to work within them, learning to work as an integrated team, and expanding participants’ professional networks.



*Dave Hewitt explains the rocket design to Brandon Stiltner, Tom Giel, Chip Kopicz and Matt Strickland.*

The project kicked-off March 25 at Dynetics, courtesy of Council member Neal Allgood who arranged the venue. Neal also arranged for propulsion engineer Dave Hewitt to attend and bring the suitcase rocket he helped design. Dave explained the design and subcomponents and offered tips on procuring materials and developing an economical design. The team had the opportunity to handle the hardware and ask questions.

During subsequent meetings, the group divided into subsystem teams under overall team lead Brandon Stiltner: Fuel Subsystem Lead - Nathaniel Long; Qxidizer Subsystem Lead - Naveen Vetcha; Case Subsystem Lead - Davis Hunter; Interface Control Lead - Matt Strickland and Flex Personnel – Colin Moynihan, Anthony Bartens, and Michael Dunning. Dr. Tom Giel and Chip Kopicz are serving as technical advisors.

The team is currently creating a ‘shopping list’ of needed materials and parts. The University of Alabama – Huntsville generously agreed to allow use of the UAH machine shop although the team will need to use its own tools such as bits and end-mills. Donations of materials, tools or funds are always appreciated since the team is under a very tight budget constraint. Email [distribution@hsv-aiaa.org](mailto:distribution@hsv-aiaa.org) if you can help.

The team’s goal is to complete and document the project in time to present the results at the Young Professional and Student Member Poster Session at the 63<sup>rd</sup> Annual Awards Dinner on May 29.

SAFETY: Safety is paramount. All participants must comply with safety directions and use protective equipment when fabricating and operating the rocket. Safety goggles, gloves, ear protection and fire extinguishers are required when firing the rocket. Other safety guidelines will be developed.

TEAM MEMBERS:

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