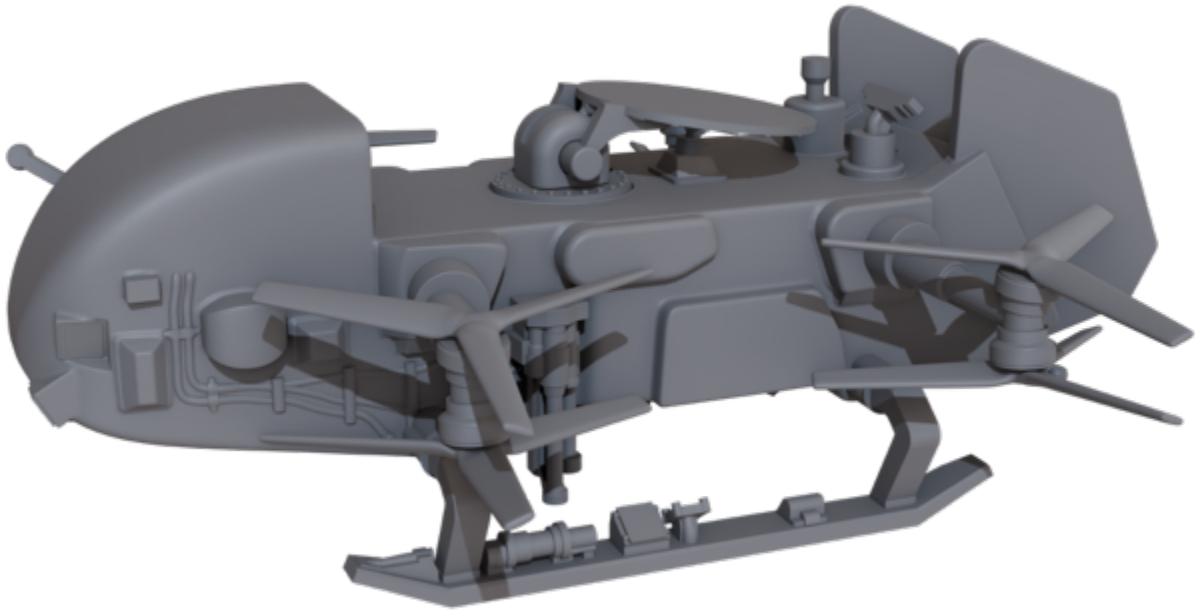
Dragonfly 'LV' (Lightweight Version) Assembly Guide

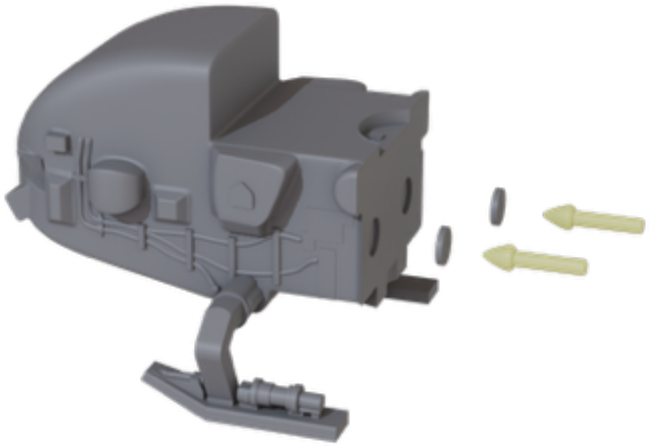
1:23.5 Scale FDM Printable Model of Dragonfly Rotorcraft for Titan Exploration



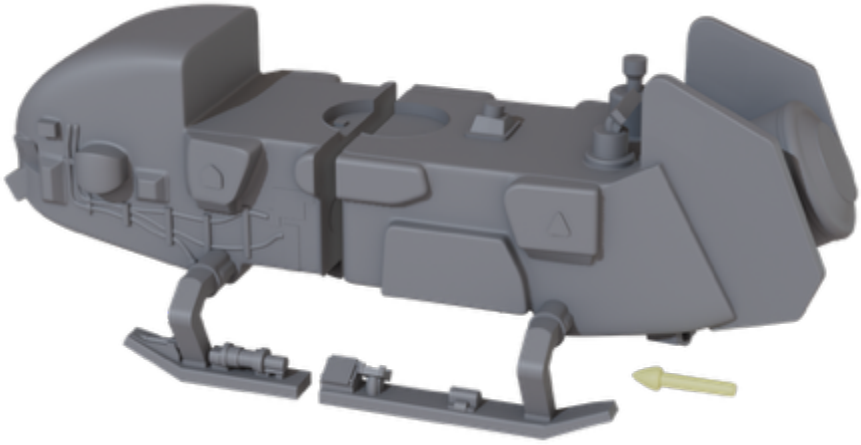
Experience Required: None, beginner friendly
Assembly Tools Required: Glue that bonds to plastic
Approximate Assembly Time: Around 30 minutes

Warning: *This model includes small parts that could present a choking hazard, so supervision is recommended for young children. Wear gloves and eye protection when using high-strength, fast-acting plastic glues.*

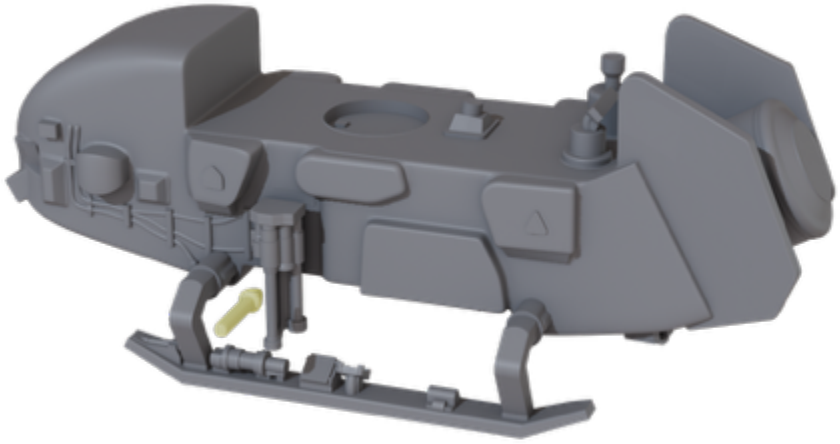
Step 1 – Glue dowels into front body piece (as shown) or back body piece. While optional to use, the dowels allow for easier alignment of the main body pieces.



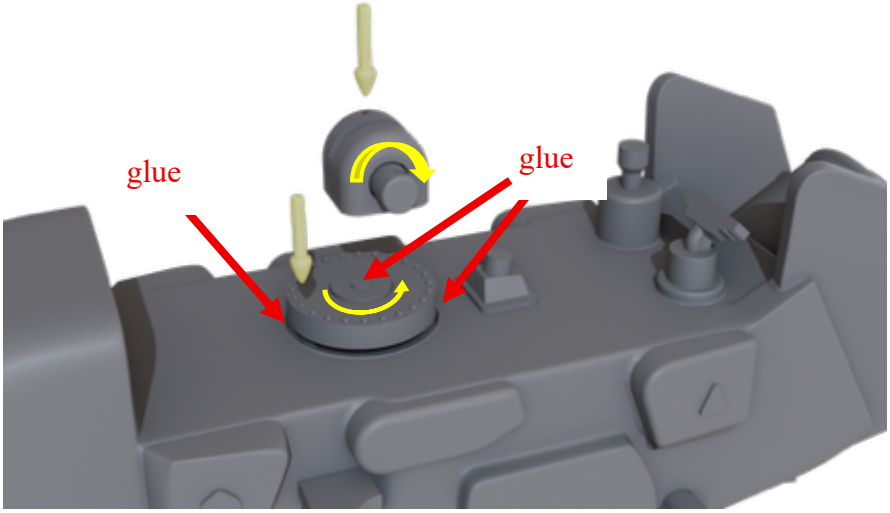
Step 2 – Glue back body piece to front body piece. After that glue sets, glue the skids / legs ensuring they are aligned and glued as well. You can use your fingers to adjust the position of the alignment of the body pieces before glue settles.



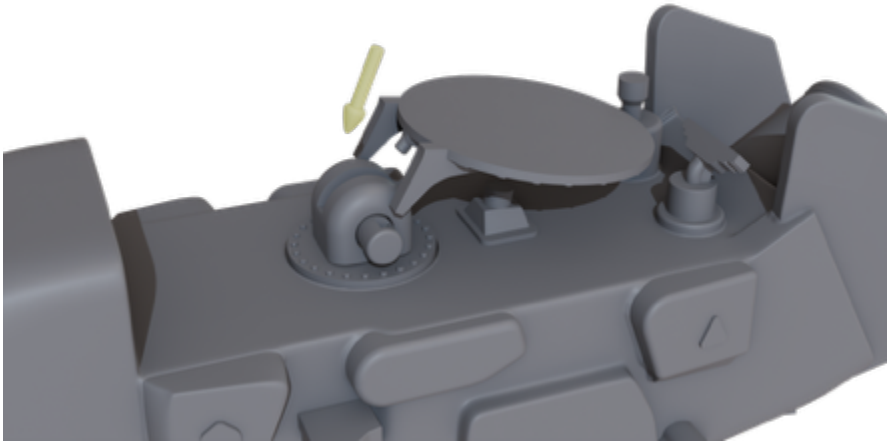
Step 3 – Glue DrACO (drill) onto body using the matching extruded guide on the surface.



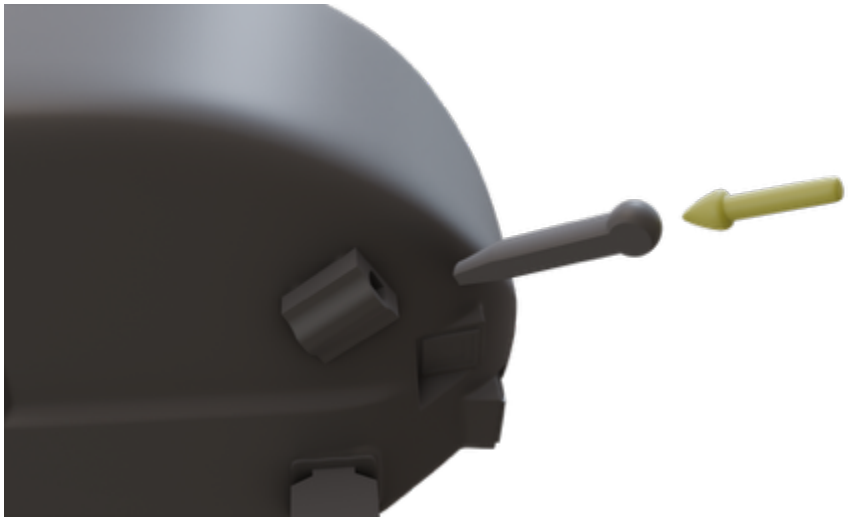
Step 4 – Check that the High Gain Antenna (HGA) base parts can spin and rotate. (It may take some work). Using only 1 drop of glue on the outside edges, affix the HGA swivel base into the body inset, then use 1 drop of glue to affix the HGA base only to the center of the swivel.



Step 5 – Test without glue to make sure the antenna dish legs fit with correct orientation. Apply glue and insert HGA into the holes of the base as shown.

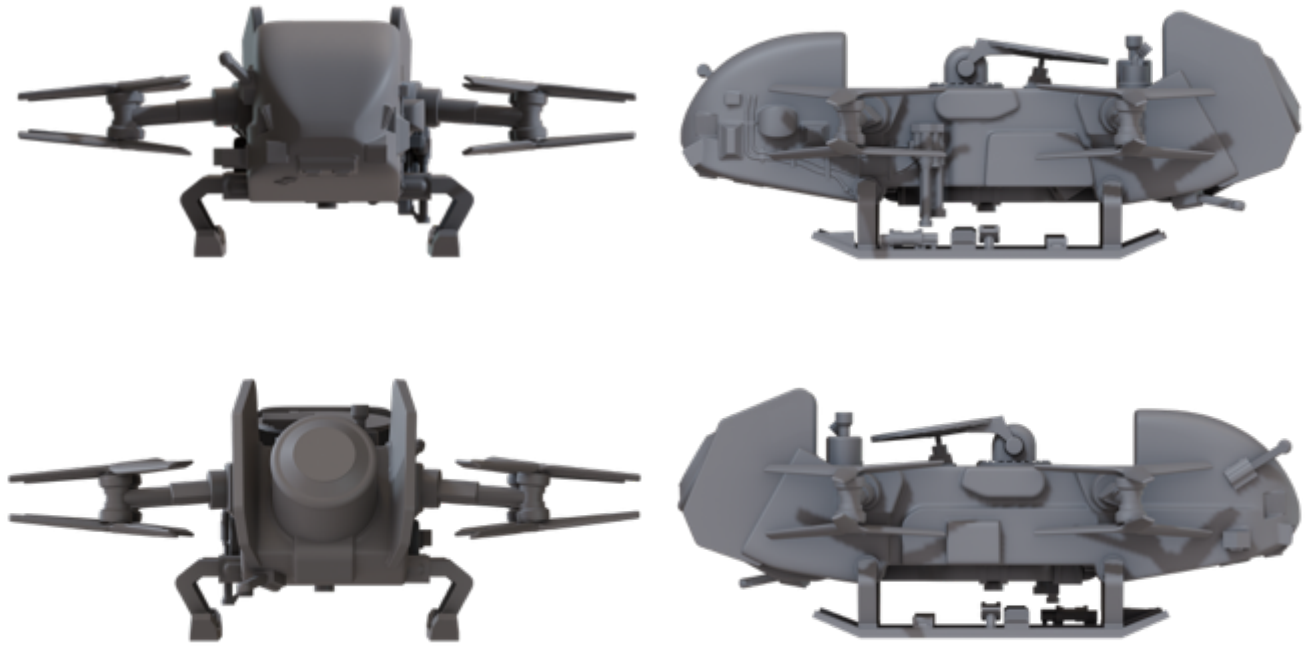


Step 6 – Glue EFLIED antenna into hole on front body piece. The tapered end should be facing towards the body itself.



Step 7 – Glue EFLIED antenna into hole on back body piece. The tapered end should be facing towards the body itself.

Step 8 – Note arms with matching extrusion guides on the body as shown above. Prior to gluing, hold the prop arm and gently wiggle the props till they spin freely. Glue arms to the body and use your fingers to finish alignment. See orthographic views below to help with final alignment of arms and propellers.



Note: The arms are tapered toward the rear of the lander where they attach to the body.

Credits:
The Johns Hopkins Applied Physics Laboratory (APL) in Laurel, Maryland, leads the Dragonfly mission for NASA in collaboration with several NASA centers, industry partners, academic institutions and international space agencies. This model was developed using only publicly available imagery through the open-source Blender software. The Blender and .STL files, along with animations and documentation, were provided to Fairmont State University by designer Gary Allen Backus under the Dragonfly outreach program.