

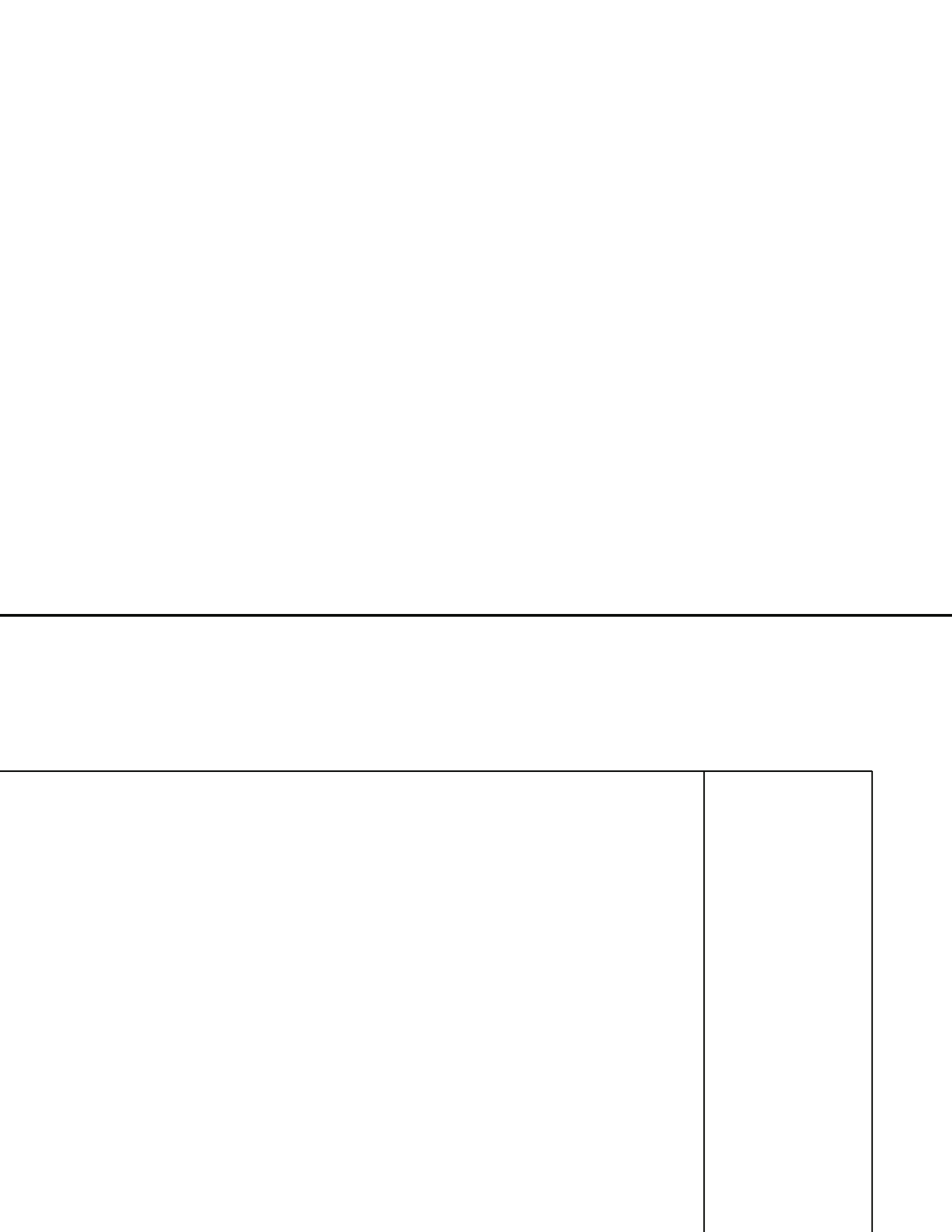
Yin-Yang Build Directions:

Wing

1. The wing is built from a single sheet of 30" x 20" foamboard.
2. Cut four 30"x 3/8"-wide strips from the foamboard.
3. Create a wing spar by gluing one strip on top of another (paper to paper) with white glue. Use weights or tape to stabilize the parts and allow several hours to dry.
4. Create a second wing spar by repeating step 3 using the remaining two strips.
5. While the spars are drying, cut the wing outline from the foamboard, as marked on the plans.
6. Decide which side of the foamboard will be the inside surface and mark the leading edge cuts. The top skin cuts will be made on this inside surface.
7. Referencing the plans, mark the inside surface of the wing with the leading edge, the top skin cuts, and the ailerons.
8. Using a sharp hobby knife or razor blade, slice the foamboard along the leading edge cut. Be careful to cut through only the inside paper layer and foam. Do not cut through the outer paper layer.
9. Fold the foamboard 180-degrees along the leading edge cut.
10. Cut a 45-degree bevel along each side of the fold. Be careful to avoid cutting through the foam at the fold.
11. Carefully fold the foamboard in the opposite direction. Apply gentle pressure to create a nice-rounded shape on the outside surface of the leading edge.
12. Lay the wing panel flat on the table and slice the inside surface of the foamboard along the lines. Do not cut through the outer paper layer.
13. Run the thin edge of a craft stick along the cuts to create a slight gap between the top skin to bend slightly inward along the cuts.
14. Once the spars are fully dried, glue them to the bottom skin of the wing.

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Also cut out the servo wire exits
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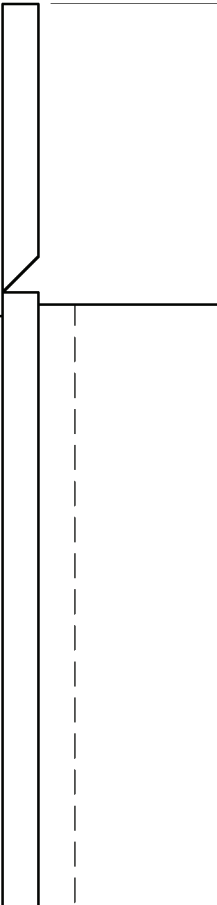
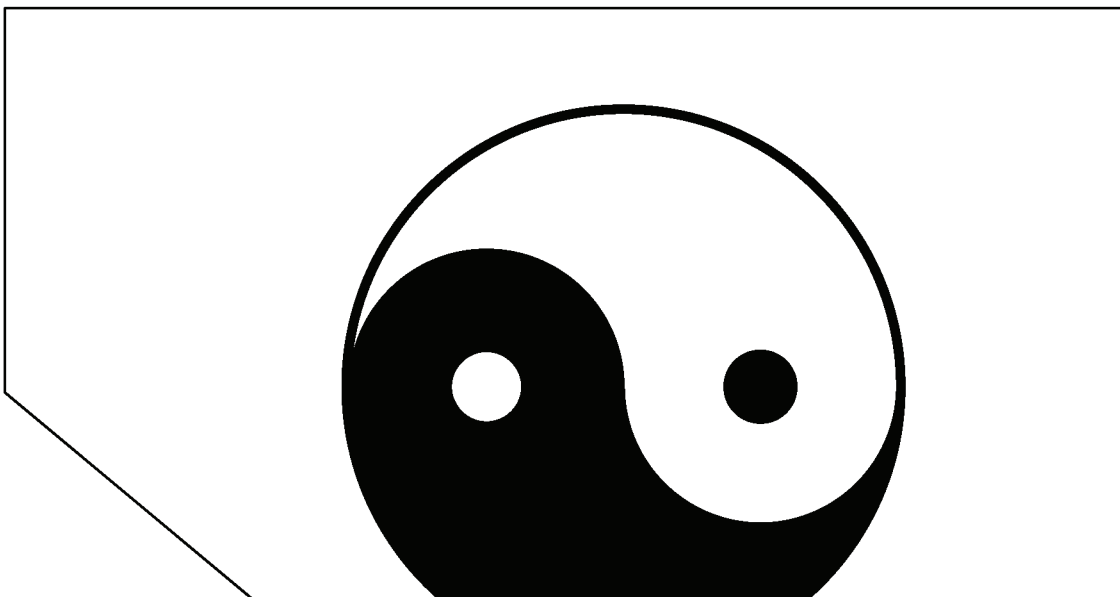


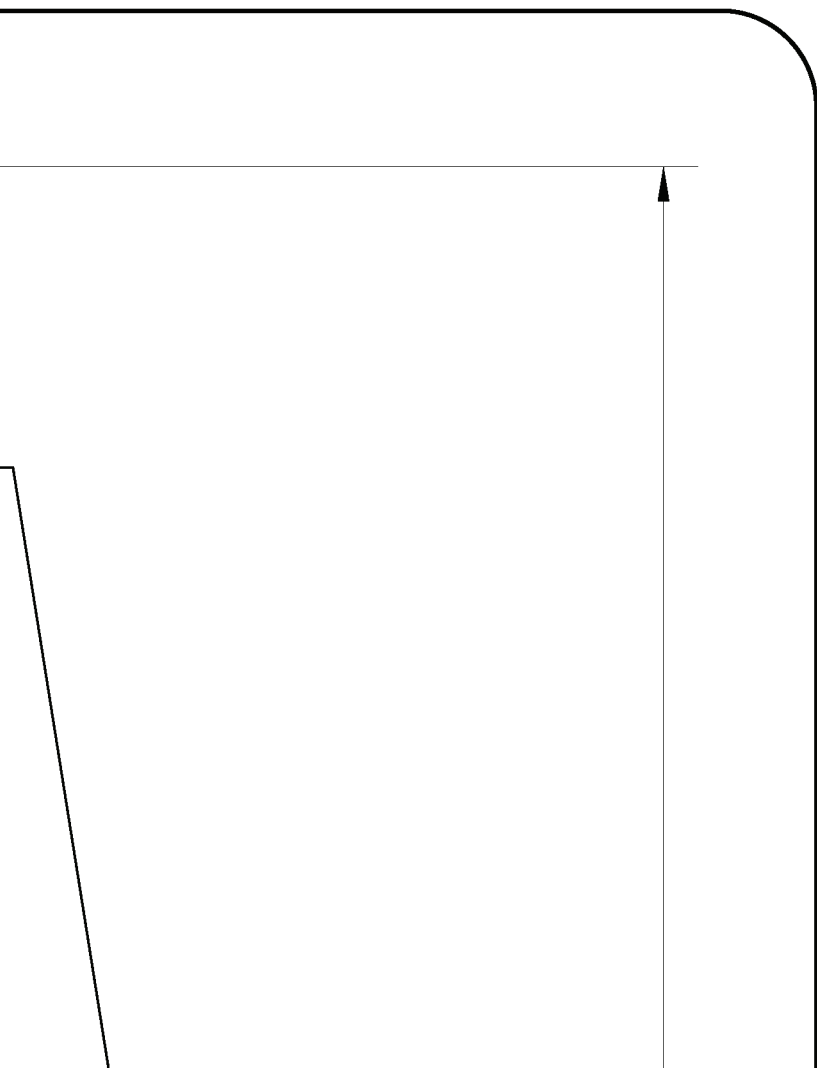
Final Assembly

1. Paint the airframe using common spray paint. Apply paint in several light coats to prevent the foam from warping.
2. Install the receiver in the right fuselage using hot glue or hook-and-loop tape.
3. Cut pockets in the foam as shown and insert Hitec HS-55 servos for each aileron. Secure the servos with a dab of 5-minute epoxy under each mounting tab.
4. Create aileron pushrods using .047" music wire. You may use any combination of Z-bends, Mini E/Z Connectors (Du-Bro part #845), or E/Z Links (Du-Bro part #920) to connect the pushrods.
5. Attach a Hitec HS-55 servo to the inside of the left fuselage where indicated using 5-minute epoxy.
6. Connect the elevator servo to the control surface using a Du-Bro .047" Micro Push Rod System (part #922). Glue the pushrod sleeve to the fuselage using 5-minute epoxy.
7. Install the motors and ESCs to each fuselage.
8. Connect all servos and ESCs to the receiver and ensure proper movement with no binding.
9. Set the control throws to +/- for the ailerons and +/- for the elevator.
10. Fold the bottom panels of each fuselage in place and secure with white glue.

Flying

1. Insert a battery in each fuselage.
2. Verify that the model balances at 1-3/4" to 2" behind the wing leading edge.
3. Connect both batteries.
4. Verify that both motors respond to throttle inputs.
5. Grasp the Left Fuselage just behind the wing trailing edge.





Elmer's white glue.

15. Apply a thin layer of Elmer's white glue to the following areas:
 - a. The top of both spars
 - b. The rear 1/8" of the inner surface of the bottom skin
 - c. The beveled faces of the leading edge
16. With the bottom of the wing panel on a flat table, carefully fold over the spars in the midsection and the rear edge of the bottom skin. The ailerons should protrude past the rear of the bottom skin.
17. Set weights on the top of the wing along the spars and trailing edge.
18. Use scrap foam to cover the open wing tips.

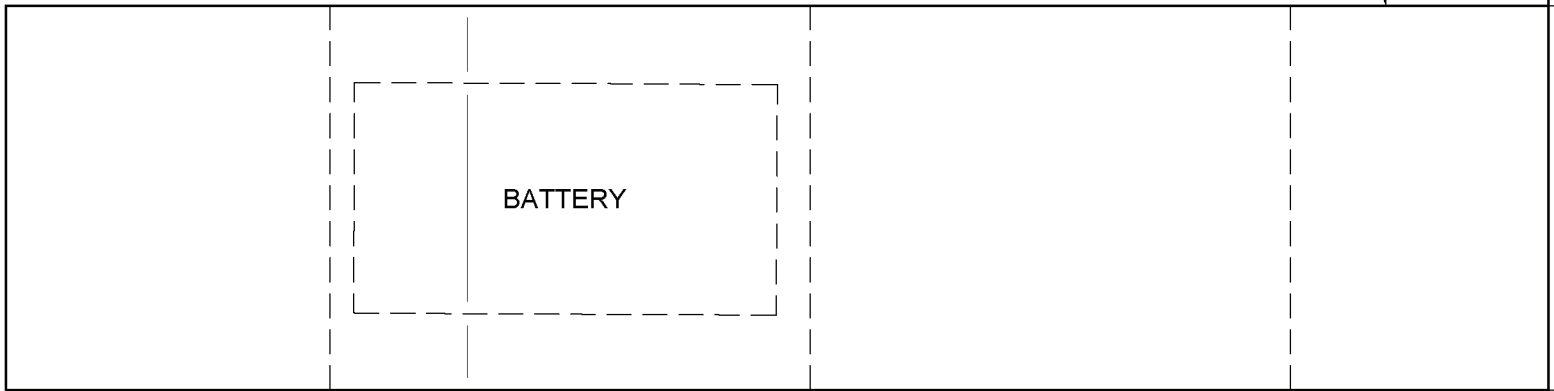
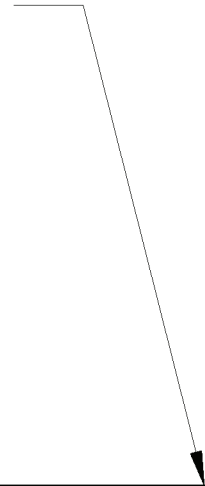
Right and Left Fuselage

1. With careful planning the remaining airframe components can be cut out of the foamboard.
2. Cut out the Left Fuselage, Right Fuselage, Horizontal stabilizer, Vertical stabilizer, and Servo.
3. Cut out the servo wire exits from the Left Fuselage and Right Fuselage.
4. Decide which side of the foamboard will be the inside surface of the fuselage. Mark with a pencil. All marks and cuts will be made on this inside surface.
5. Cut and remove the foam and inner layer of paper where indicated on the plans. Cut through only the inside paper layer and foam. Do not cut through the outer paper layer. The inner layer should easily peel away from the outer layer of paper with slight pressure.
6. Make relief cuts on the Right Fuselage where indicated on the plans. Cut through only the inside paper layer and foam. Do not cut through the outer paper layer between these cuts.
7. Lay the Right Fuselage flat on the building surface with the inside surface facing up.

the top skin until it contacts the
fibers on the top skin should

Allow to dry for several hours.

RIGHT FUSELAGE



from a single piece of 30" x 20"

al Stabilizer, and two battery trays.

e.

left fuselage and mark it with a

n the plans. Be very careful to cut
the outer paper layer. The foam
is sure.

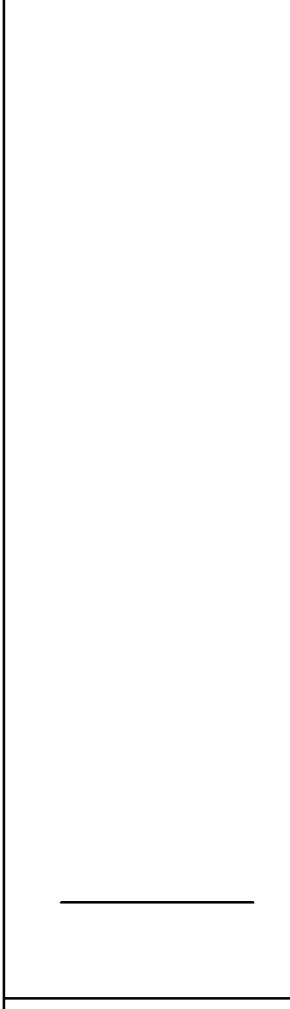
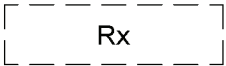
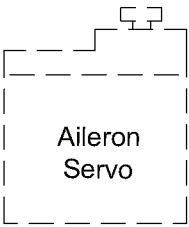
Be very careful to cut through
the paper layer. Remove the paper

face facing up.

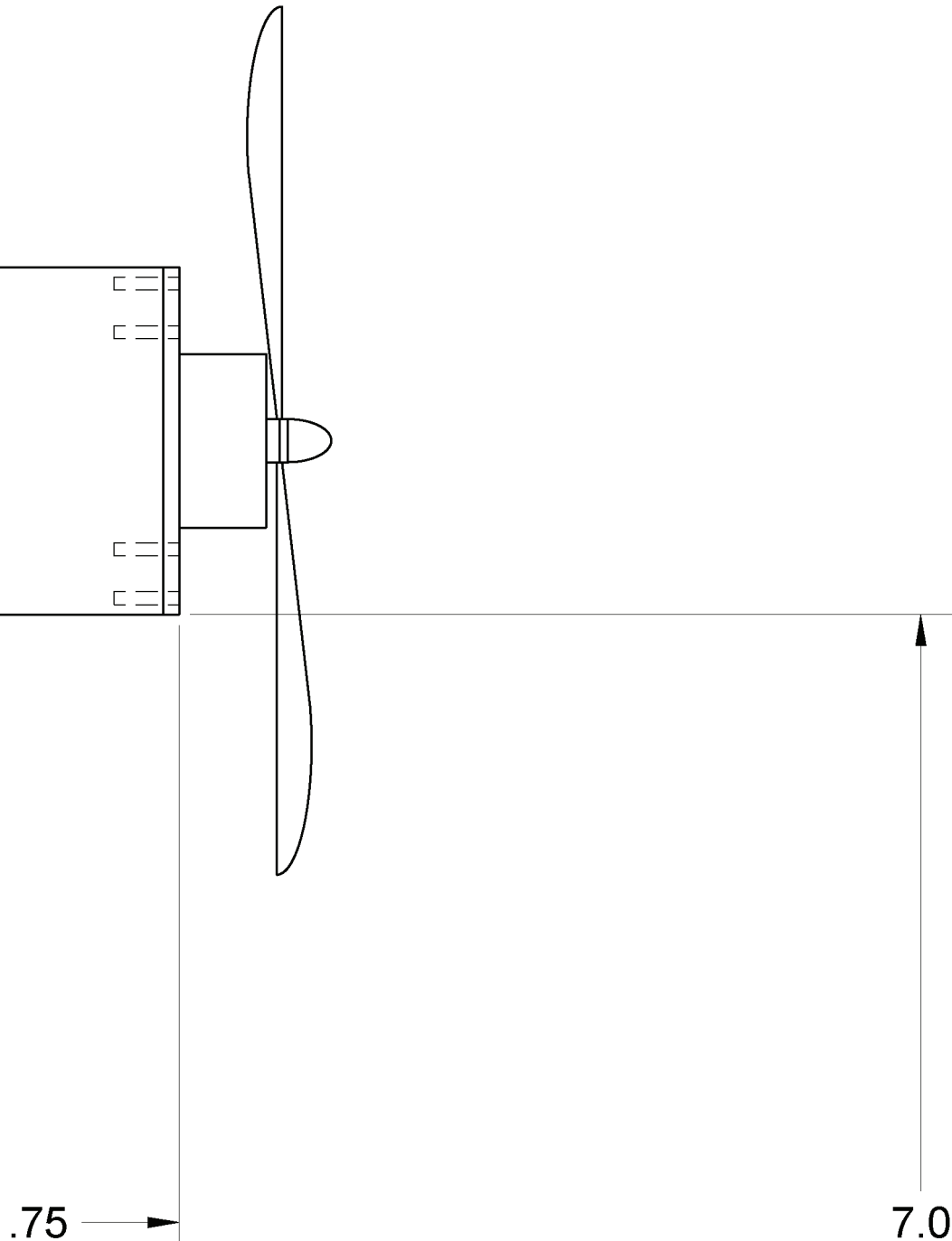
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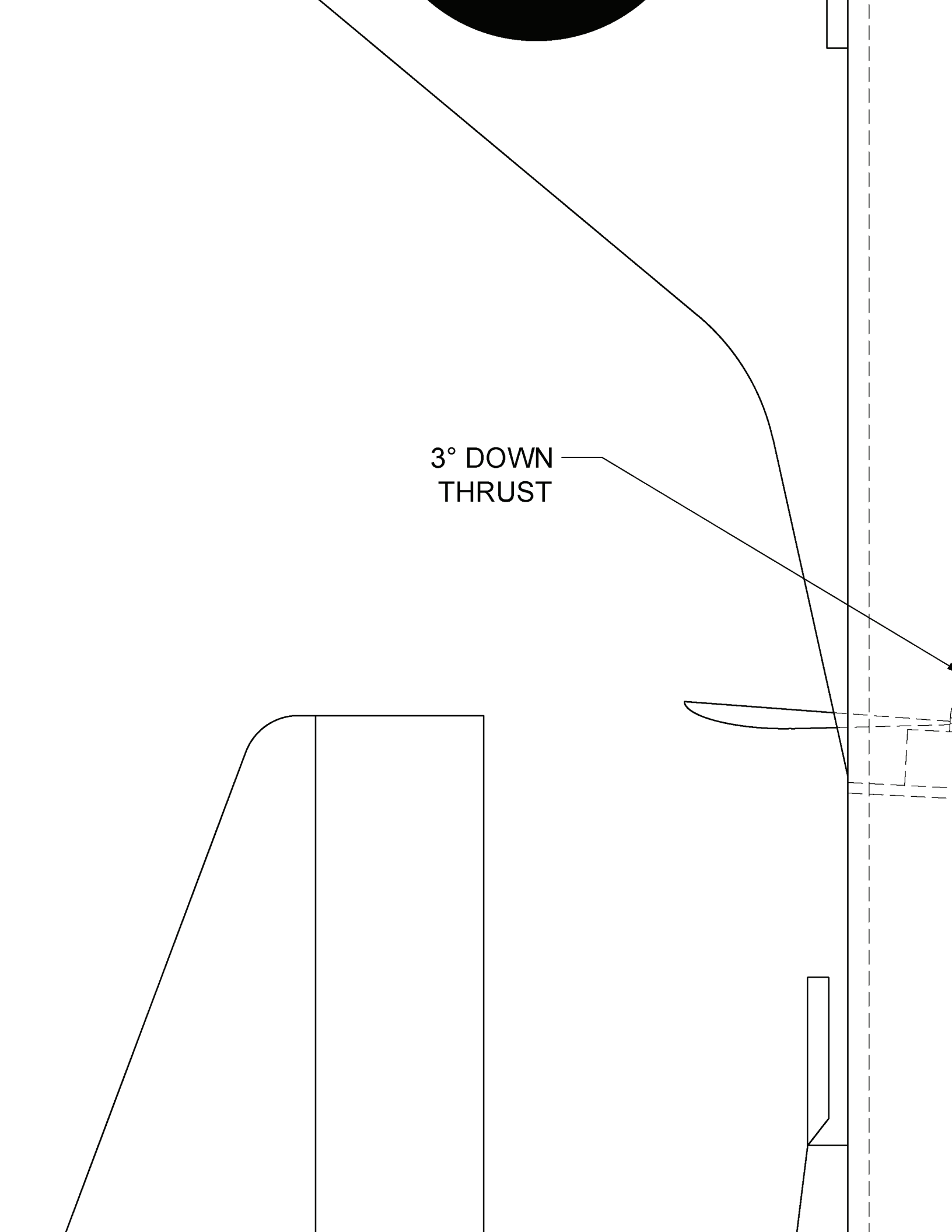
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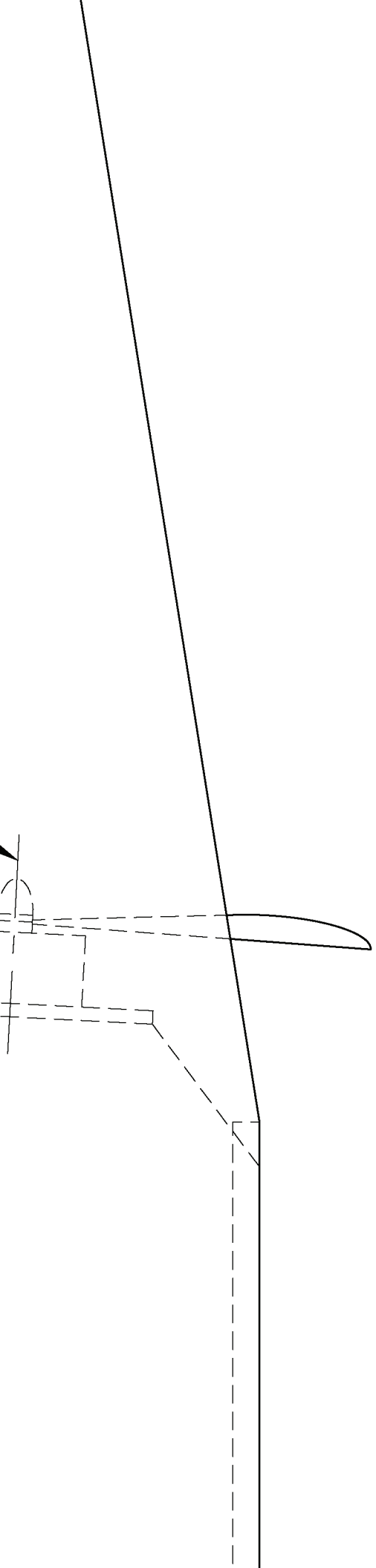


6. Apply $\frac{1}{2}$ to $\frac{3}{4}$ throttle.
7. Launch the model with a slight nose-high attitude using an underarm motion.
8. Enjoy flying your Yin-Yang! This model is fast and responsive.
9. Be conservative with your flight times to ensure that one motor does not cut off before the other.



3° DOWN
THRUST





29.5

8. Apply a light layer of white glue to the edge of each side panel where they meet.
9. Rotate the side panels so they are vertical and the edge of each panel is flush with the fuselage.
10. Use tape and/or weights to hold the side panels in position and allow the glue to dry.
11. Repeat steps 7-10 on the Left Fuselage.
12. Remove the paper layer from one side of each battery tray.
13. Optional: Glue a strip of thin plywood (1/64" to 3/32"-thick) to the bottom of each battery tray.
14. Glue a strip of Hook-and-Loop tape to each Battery Tray using 5-Minute epoxy. If using optional plywood strip, glue it to the bottom of the tray first.
15. Apply a thin layer of white glue to the side edges of each Battery Tray on the Left Fuselage.
16. Apply a thin layer of white glue to the edges of the Forward Fuselage and the battery trays around.
17. Set the top panel of the Right Fuselage in place. Use low-tack masking tape to hold it in position until the glue has dried.

Firewall

1. Cut out the two Firewalls from 3/32" plywood.
2. Drill the holes necessary to mount your chosen motors and route the wires through them.
3. Obtain a package of round toothpicks, these will be used to strengthen the firewall and its attached fuselage.
4. Drill two holes each along the top and side edges of the firewalls. The holes should be spaced evenly. The toothpicks can be pushed through them with light pressure.
5. Cut 6 toothpicks in half using sharp side cutters.
6. Apply white glue to the rear edge of the Right Fuselage where the Firewall will be attached.
7. Place the firewall in position on the Right Fuselage. Use low-tack masking tape to hold it in place.
8. Apply a drop of white glue to the sharp end of a toothpick half.
9. Carefully push the toothpick half through a hole in the Firewall and into the fuselage. It is okay if the toothpick protrudes out of the firewall. This will be trimmed later.
10. Apply glue and push the toothpick halves into the remaining 5 holes on each Firewall.
11. Repeat steps 6-10 on the Left Fuselage.
12. Allow to dry for several hours.
13. Use a pair of sharp side cutters to trim the toothpick halves flush with the fuselage. A fine file may be used to make the joints even smoother.

Control Surfaces

1. Place the horizontal stabilizer on the work surface with the bottom side up. Cut along the hinge line. Be very careful to cut through only the bottom paper layer and the foam core.
2. Draw a line on the elevator that is approximately 3/16" behind the hinge line.
3. Cut along the line with the blade angled towards the hinge line. This will create a small piece at the hinge line. The top paper layer acts as a hinge.
4. Spread a very thin layer of white glue along the inside of the hinge line on the elevator.
5. Optional: Cut a slit into the horizontal stabilizer approximately 1/2" from the hinge line. Insert a 1mm x 3mm flat carbon fiber spar into the slot. Secure with foam-safe epoxy.
6. Cut both ailerons free, repeating the same method used with the elevator. The hinge line should be left intact as a hinge.
7. Install three Du-Bro Micro Razor Control Horns (part #936) to the elevator. Secure with 5-minute epoxy.

they meet the top panel.
sits on the top panel.
the glue to dry for several hours.

are side of each Battery Tray.
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sides where the top panel wraps
g tape to keep the top panel in

wires through the Firewall.
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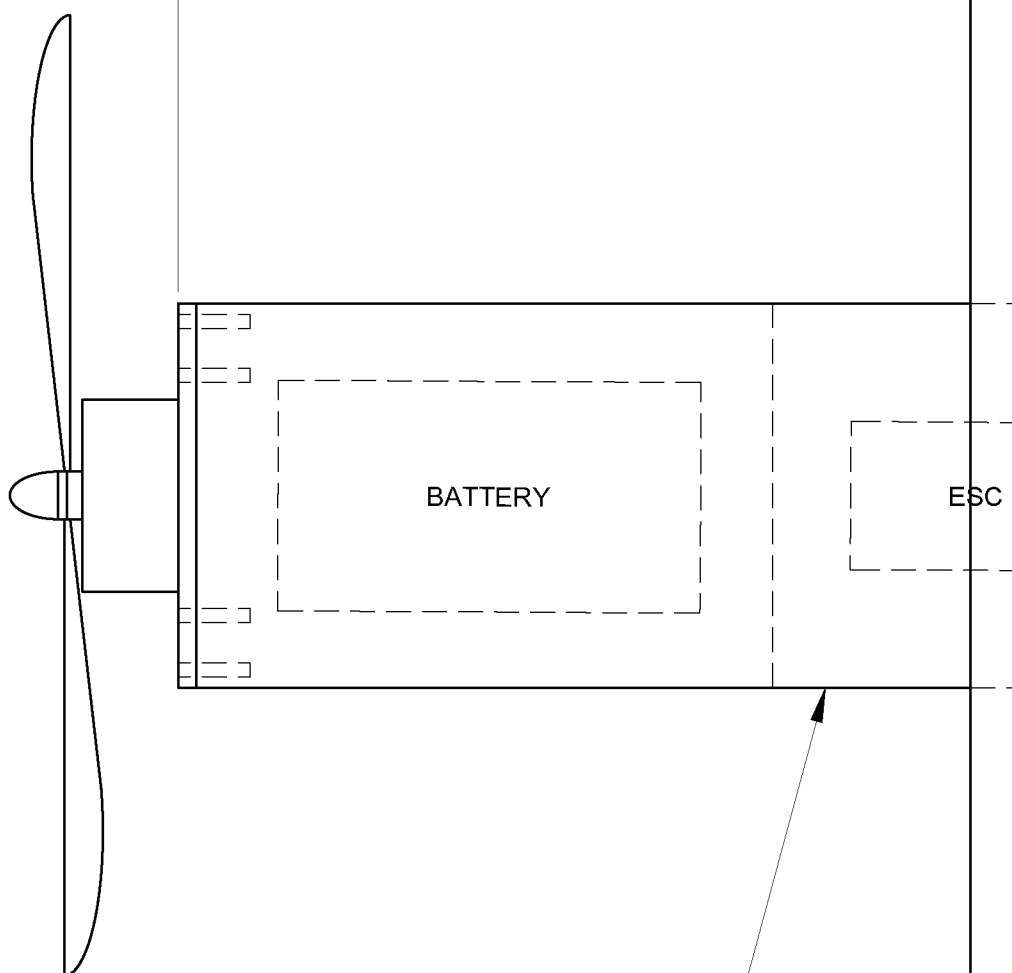
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de facing up. Cut along the hinge
oam. Do not cut into the top paper

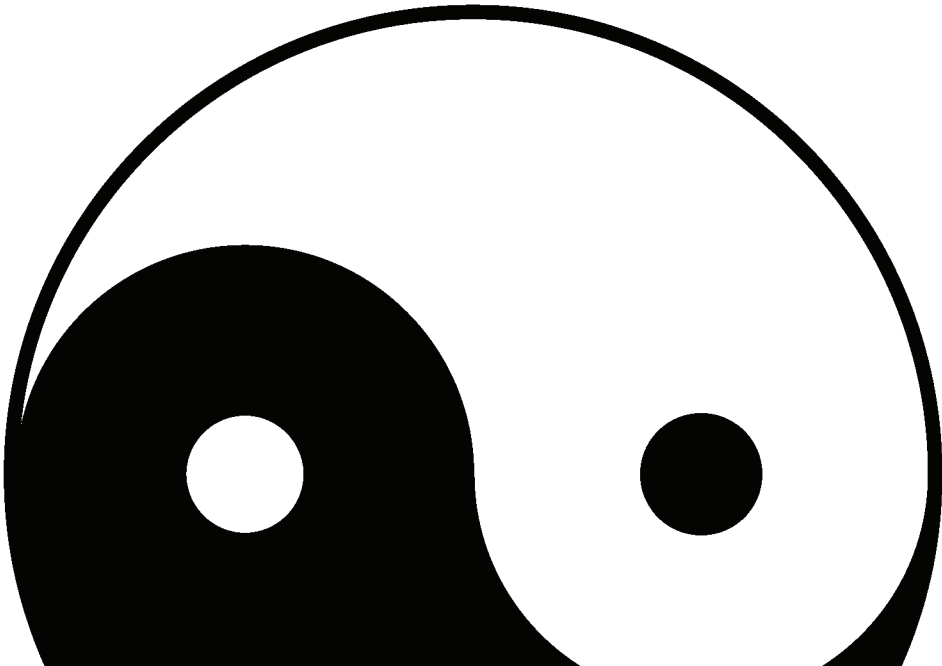
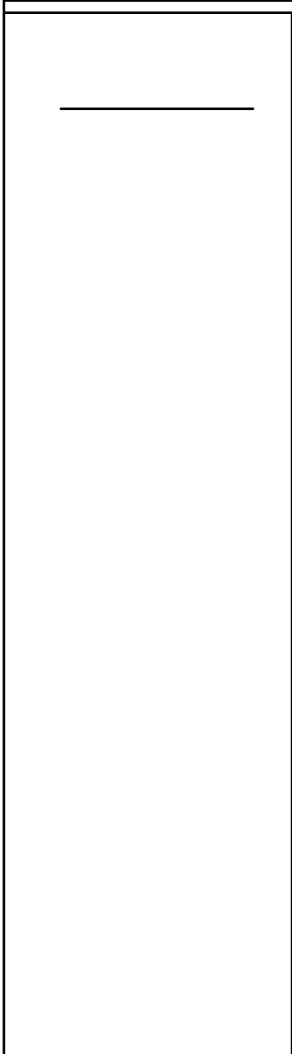
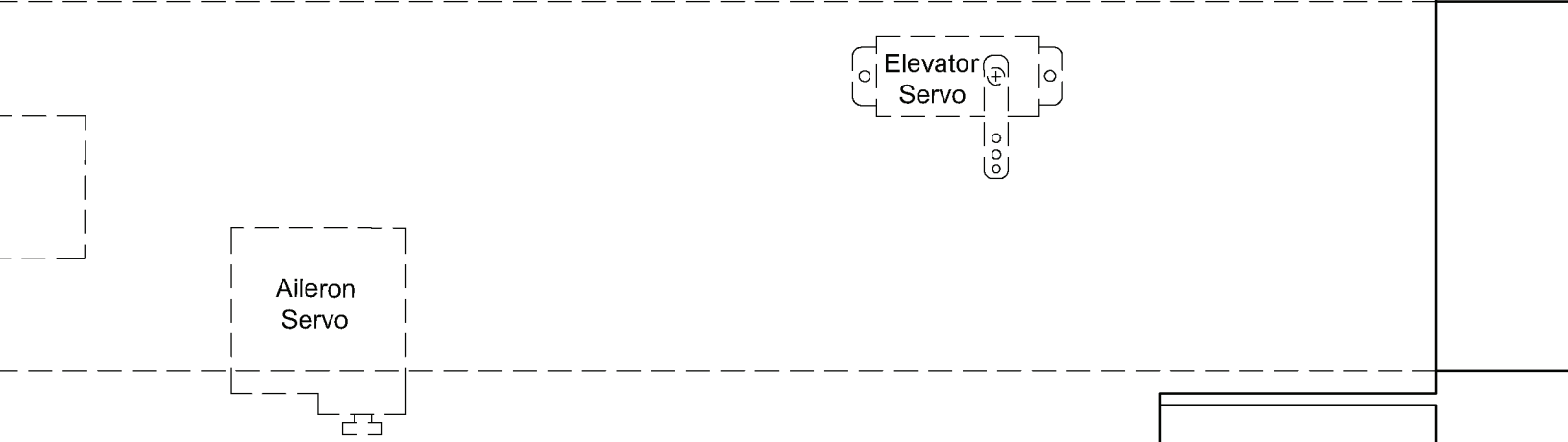
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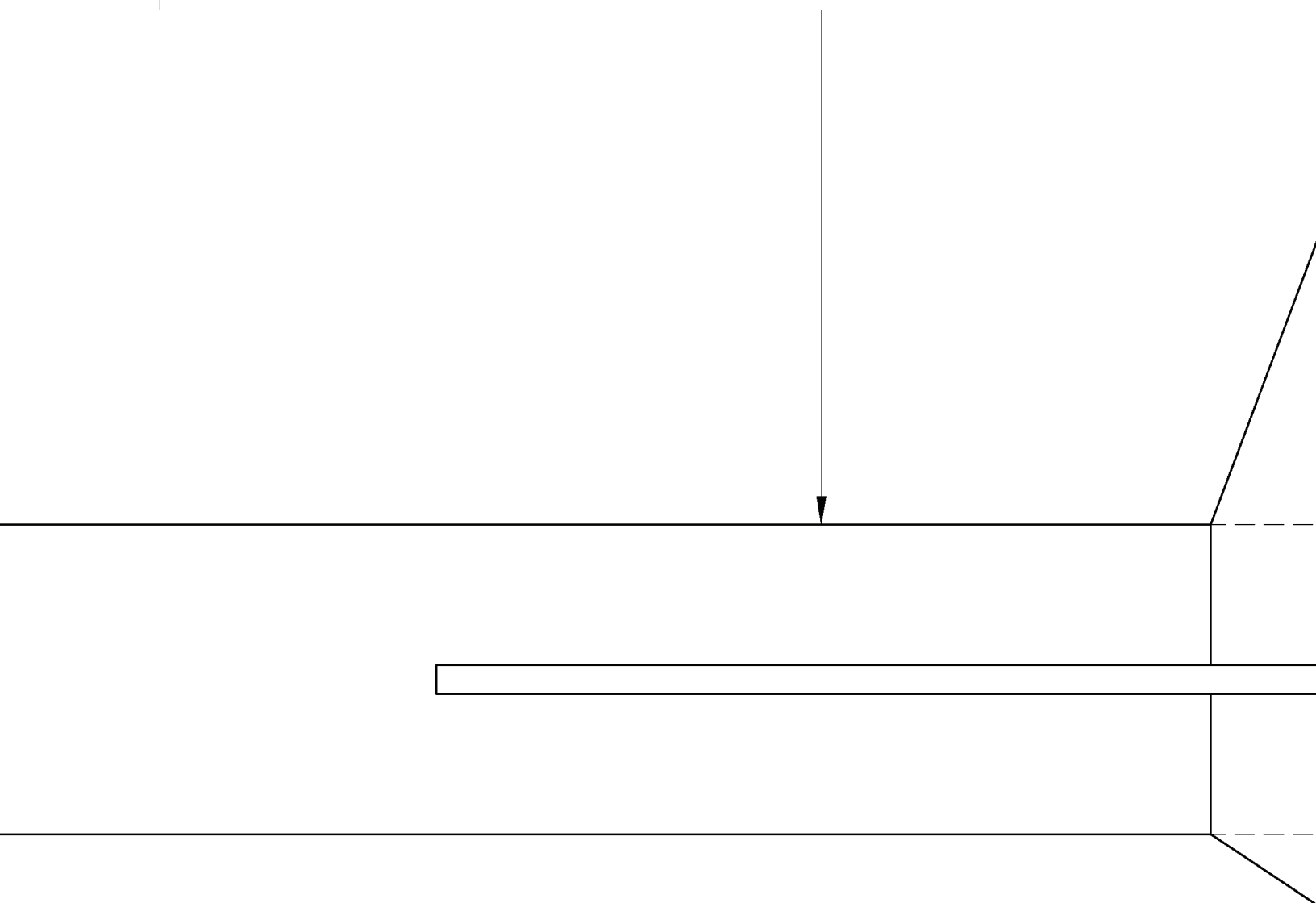
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erator and ailerons where indicated



LEFT FUSELAGE





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and

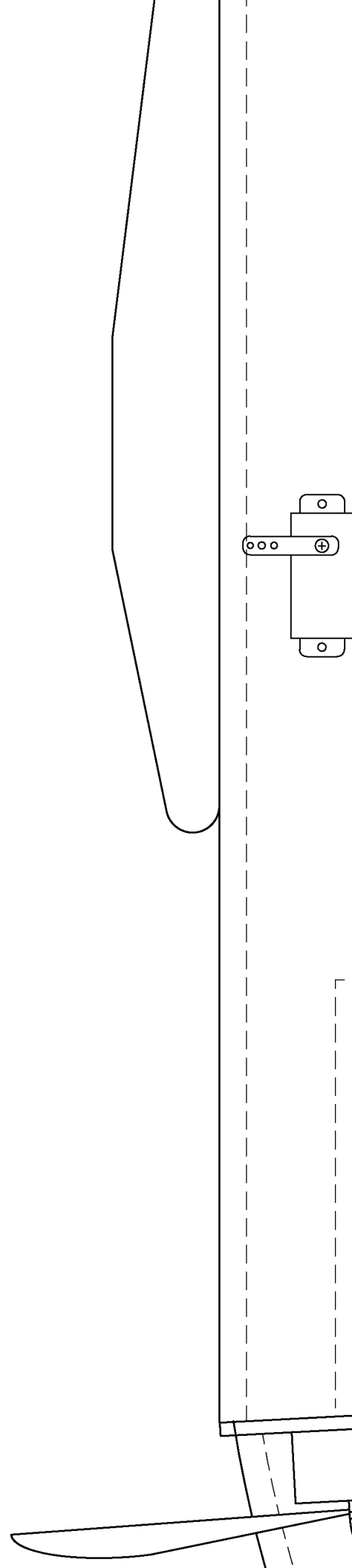
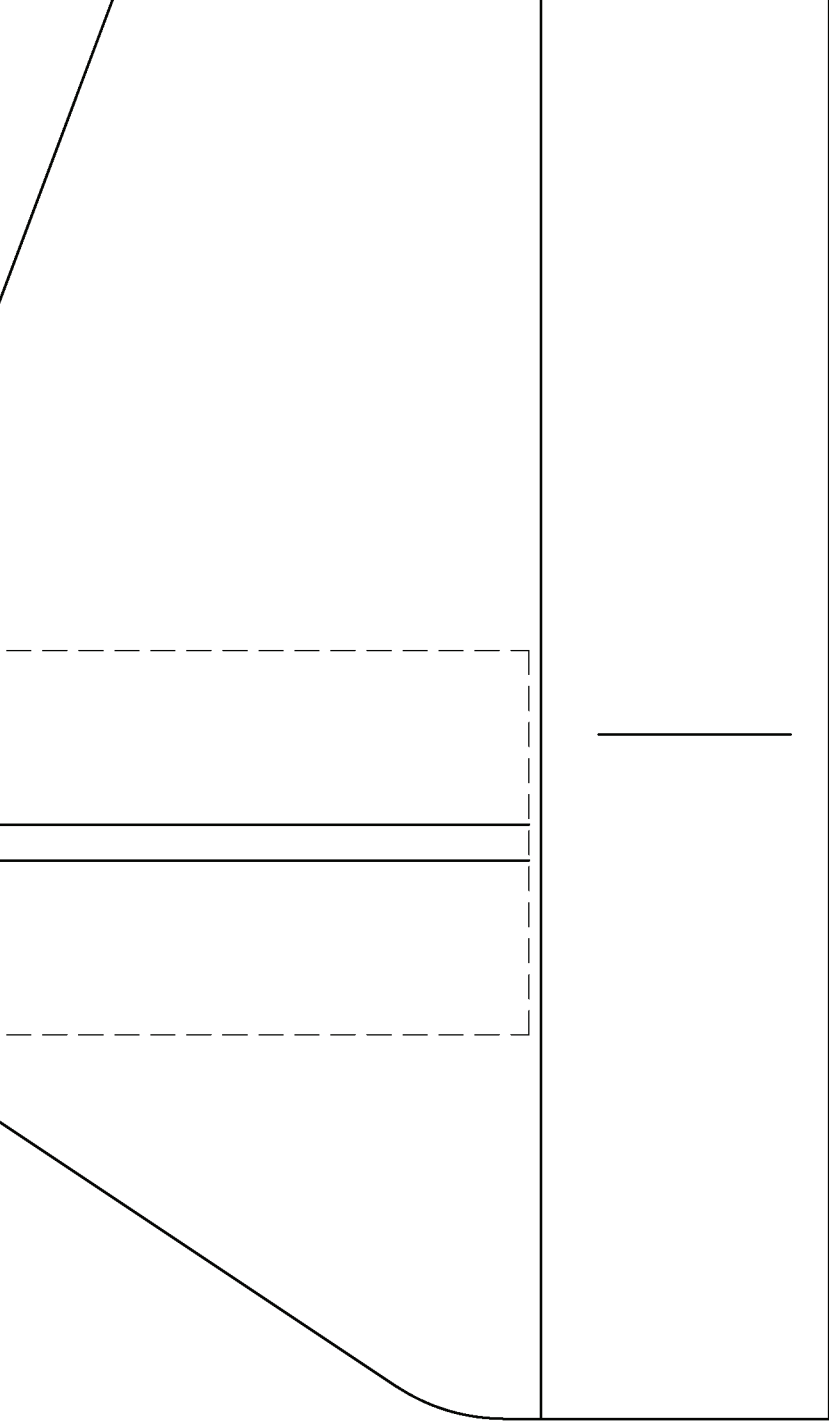
ModelAviation
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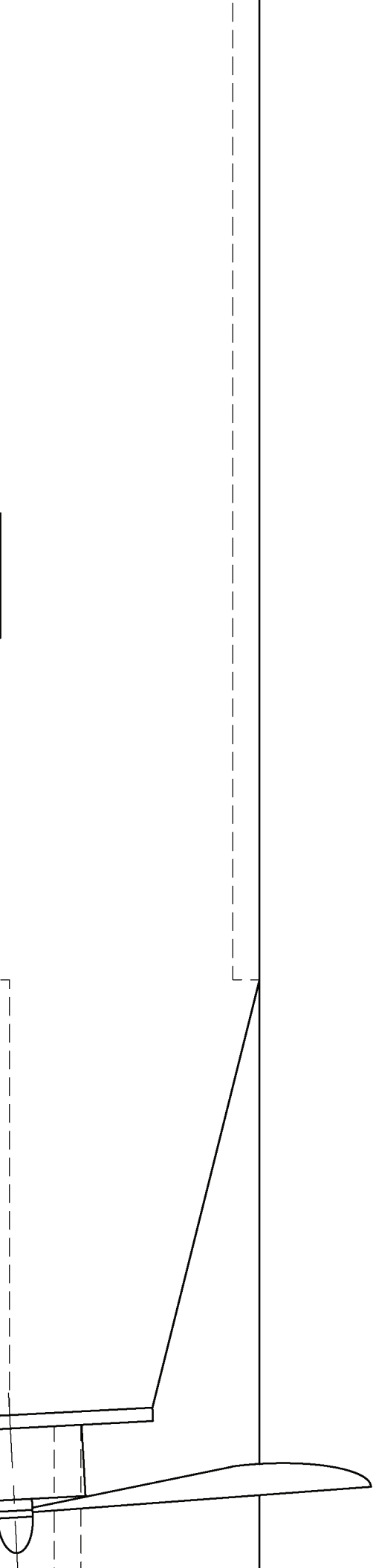


YIN-YANG



o. 1124





Join Sub-Assemblies

1. Route three 12"-long servo extensions through the channel between the fuselages. The ends of the extensions should emerge from the right side of the wing.
2. Remove the outer paper from the bottom of the wing and the top of the fuselages where these parts will be joined.
3. Set the Right and Left fuselages in position on the top view of the plane in the correct position.
4. Spread a layer of white glue where the wing meets the Right and Left fuselages.
5. Set the wing in place on the Right and Left Fuselages. Ensure that the servo extensions pass through the exit holes in the top of each fuselage.
6. Verify that all components are aligned correctly.
7. Add weight to the top of the wing and allow the glue to dry for several hours.
8. Remove the weights and lift the airframe from the work surface.
9. From inside the Left Fuselage, push a toothpick half through the top of the fuselage and the bottom surface of the wing. Remove the toothpick, cover the point where the toothpick entered into the hole.
10. Repeat step 9 until six to ten toothpicks are placed in each fuselage.
11. Remove the outer paper from the bottom of the Horizontal Stabilizer and the Vertical Stabilizer where the tail feathers are joined.
12. Glue the Horizontal stabilizer to the Left Fuselage with white glue and a toothpick.
13. Glue the Vertical Stabilizer to the Left Fuselage with white glue. Ensure the stabilizer is centered and allow to dry.
14. Optional: Add a small brace between the Horizontal and Vertical Stabilizer with a wooden dowel secured with white glue.

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the Right and Left Fuselages

ns. Use weights to hold them in

Fuselages.

servo extensions pass cleanly

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with white glue and reinsert it

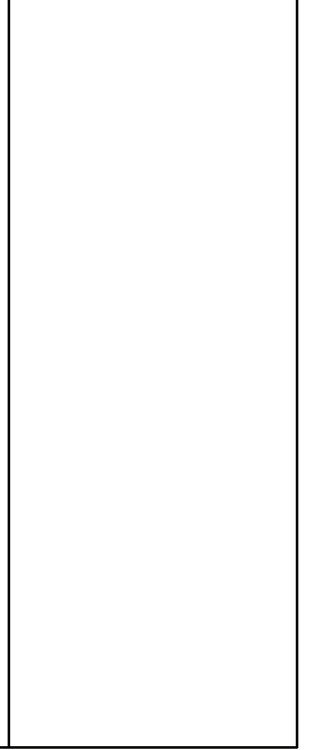
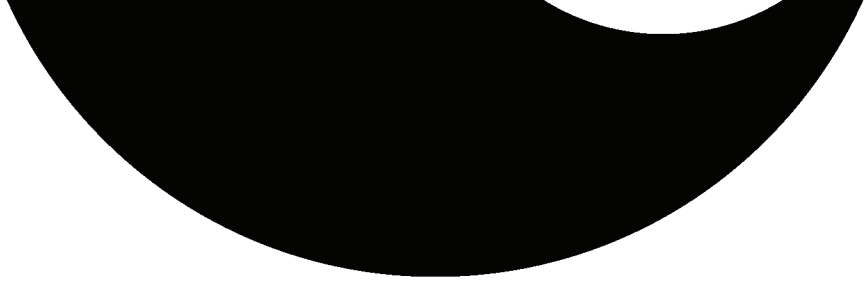
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allow to dry.

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Asymmetric Twin Park Flyer

Designed By: Terry Dunn
Drawing By: Dan Sponholz

WINGSPAN: 30 in. (762 mm)

LENGTH: 29.5 in. (749 mm)

WEIGHT: 15-20 oz. (425-567 g)

WING AREA: 233 in² (15.0 dm²)

POWER SYSTEM:

MOTORS: 2X 75-150 watt

ESC'S: 2X 8 amp min.

PROPS: 2X 5 x 4.5 BN Master Airscrew

BATTERIES: 2X 450-850 mAh 2-3S LiPo

SERVOS: 3X 9 gram

3° DOWN
THRUST

