

Aerocraft Maker

# Manual for Wright Flyer

Including aircraft build, V7RC installation, and tutorial for test fly

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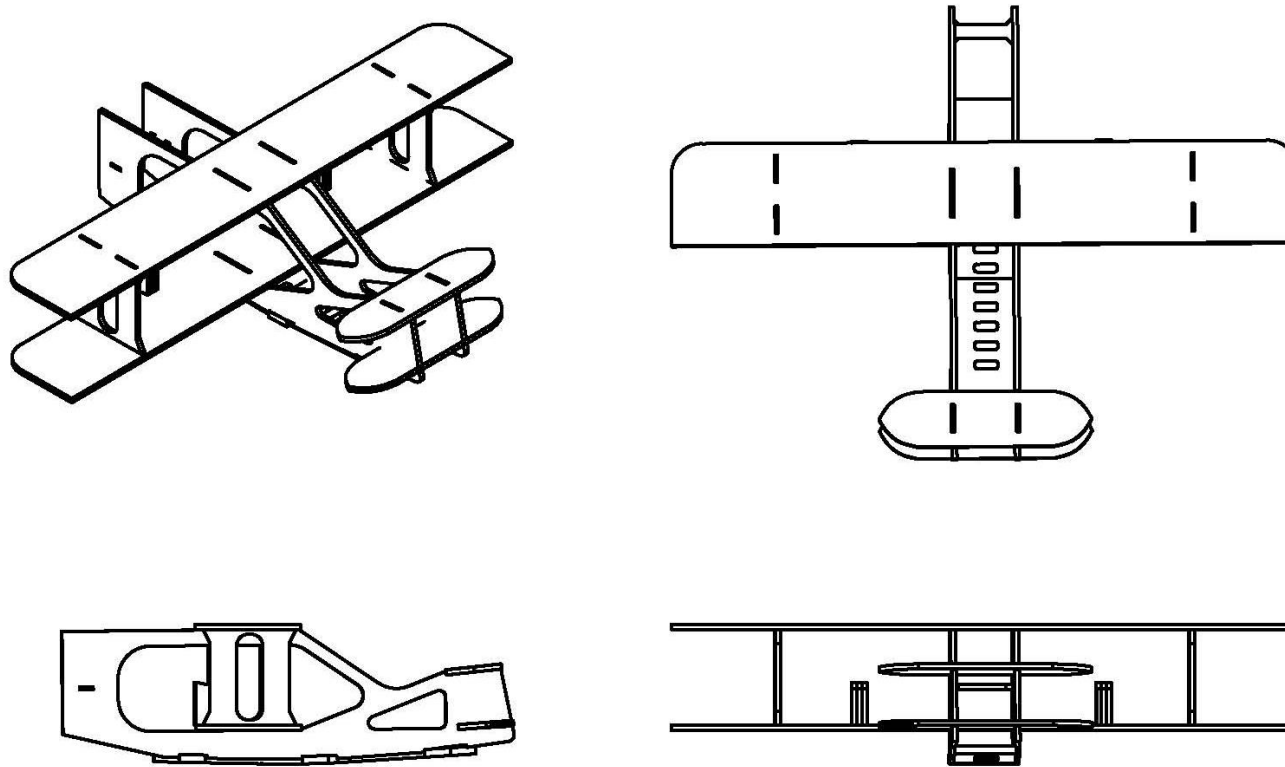
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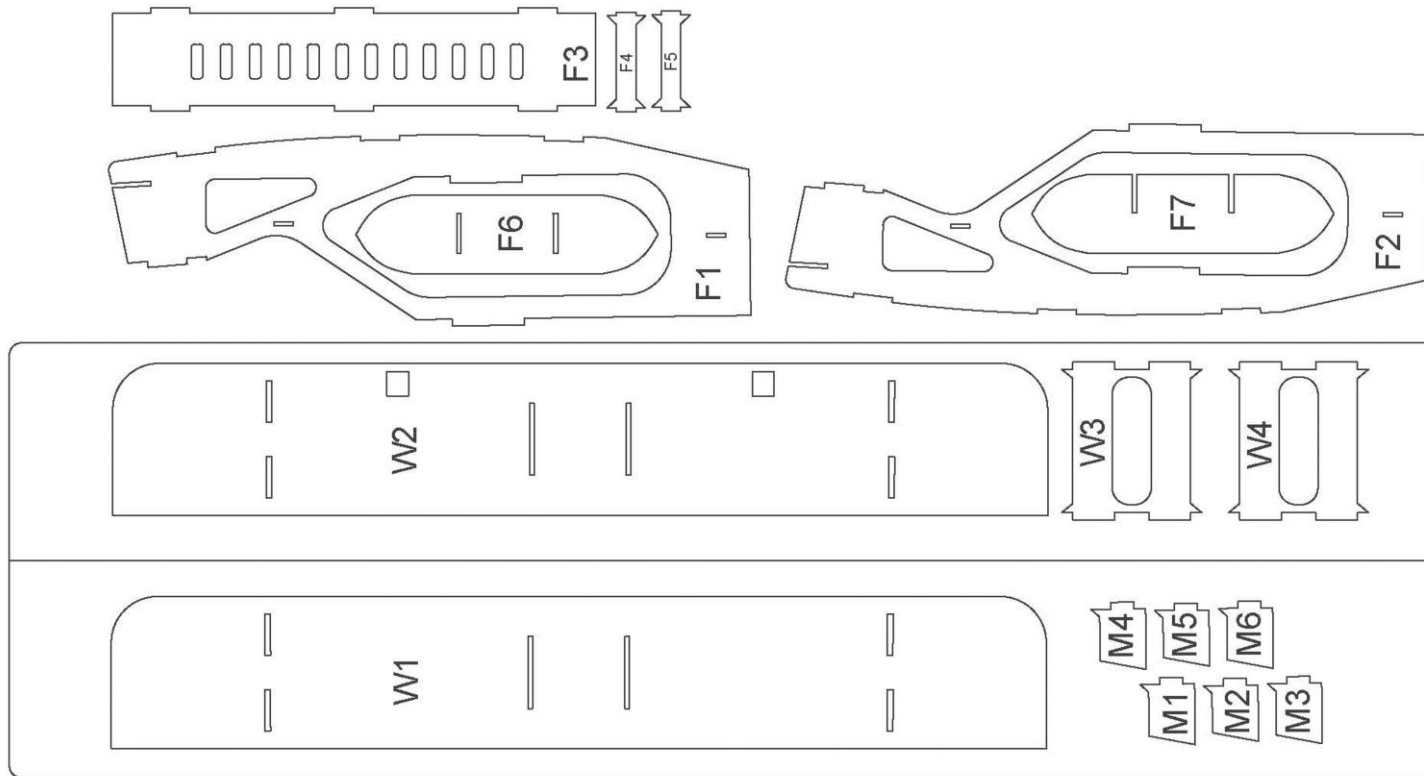
## I. Three-view diagram



*Figure 1 Three-view diagram of Wright Flyer*

Figure 1 shows the three-view diagram of Wright Flyer. The dimensions of Wright Flyer are 264mm x 386mm x 78.5mm. It is designed with H beam structure to make it stronger to resist crashes.

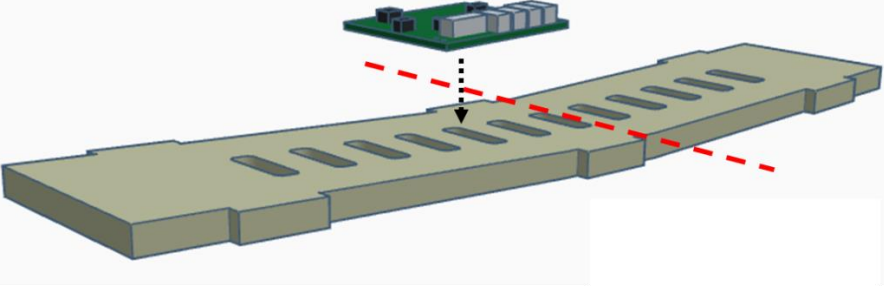
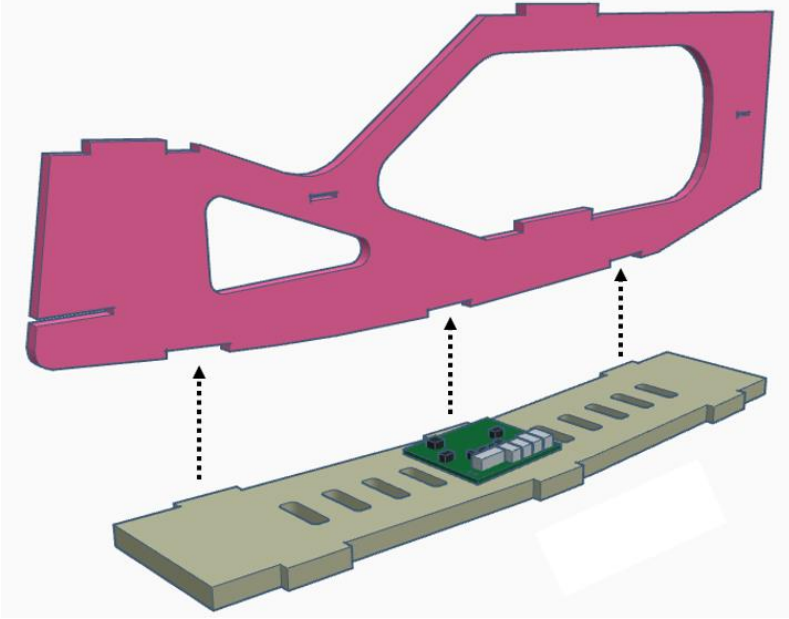
## II. Numbering of Wright Flyer units

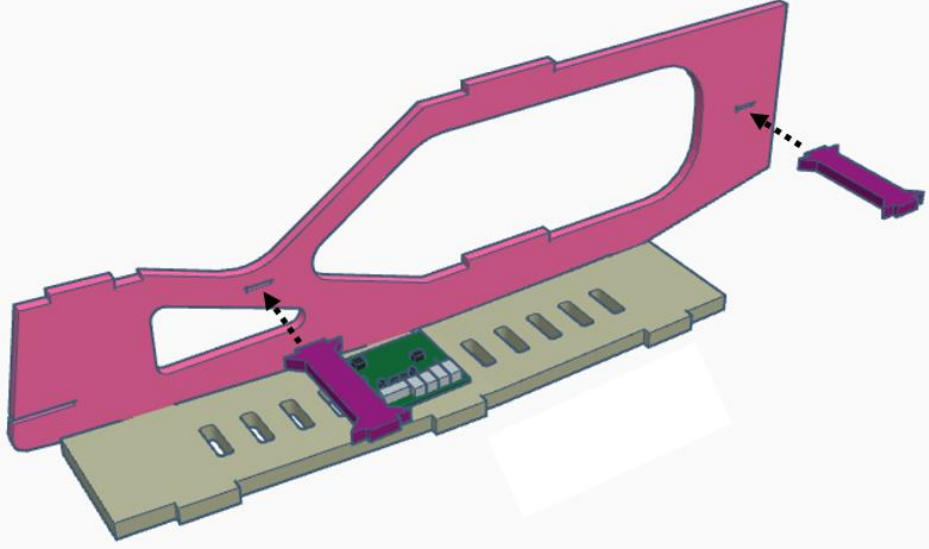
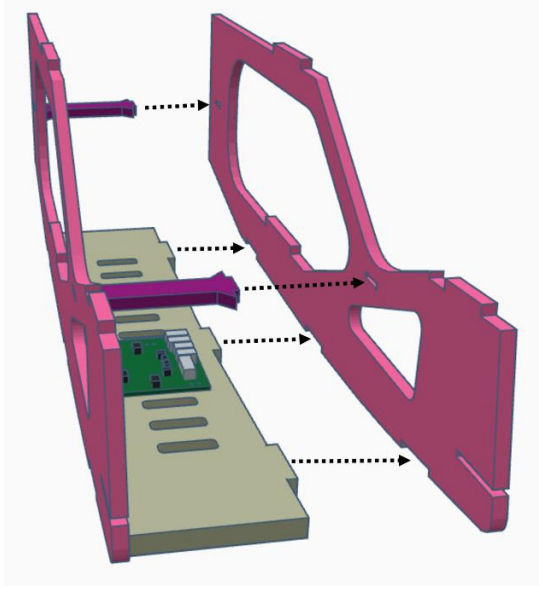


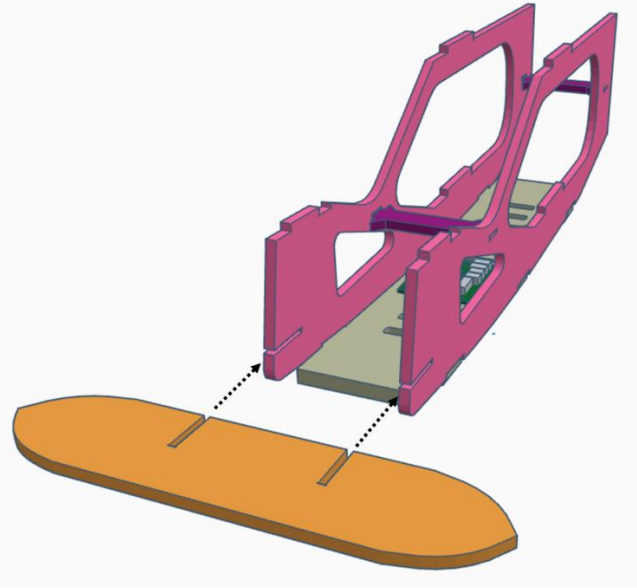
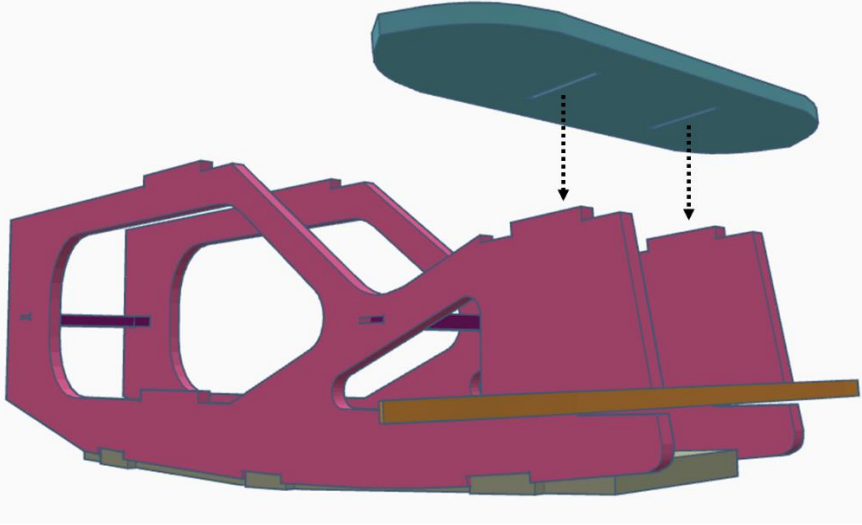
*Figure 2. Numbering of Wright Flyer units*

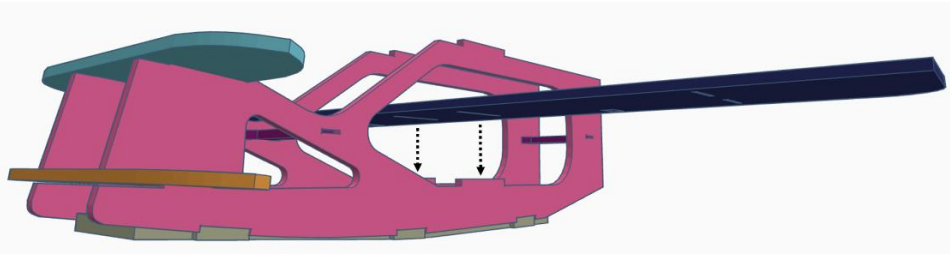
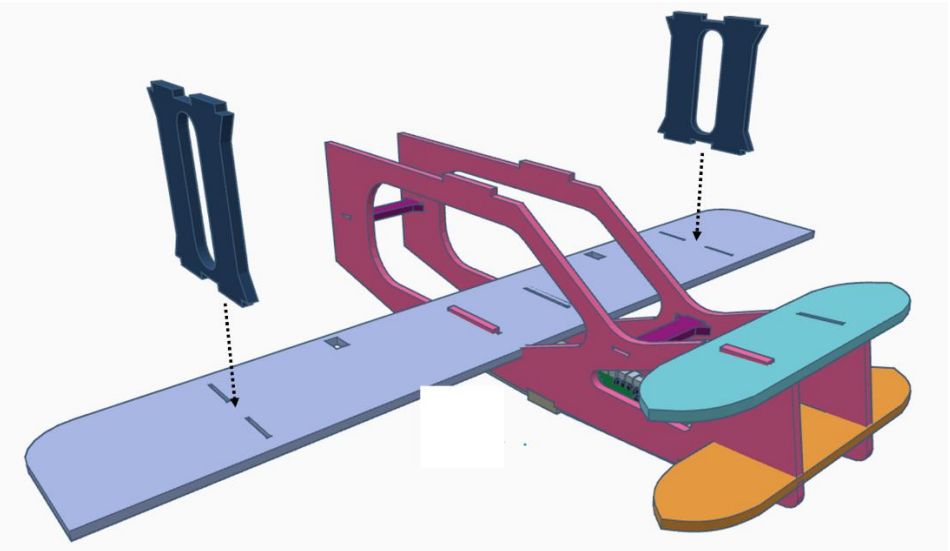
Figure 2 shows the numbering of Wright Flyer units. The units are numbered based on the following rules. For those related to fuselage, the numbering starts with initial of “F”. For those related to wing, the numbering starts with initial of “W”. Finally, for those related to motor, the numbering starts with initial of “M”.

### III. Assembly steps

1	<p>Attach Li-Gyro flight controller on the bottom part of fuselage (F3). You can confirm the correctness of the orientation of the flight controller by checking that Y axis of Gyro is pointing to the front of the fuselage. Moreover, you need to ensure that the rear edge is aligned with the dash line in red. You can put four drops of hot glue to hold the flight controller.</p>	
2	<p>Attach the right-hand part of the fuselage (F1) to the bottom part of the fuselage (F3). You just need to squeeze a litter bit of polystyrene glue along the contact area, assemble it to the bottom part of the fuselage, and hold them tight for 30-40 seconds until the glue is dry.</p>	

3	<p>Stick fuselage supporters (F4 and F5) to the right-hand part of the fuselage (F1). You just need to drop a litter bit of glue along the contact area, insert them into the right-hand part of fuselage, and hold them tight for 30-40 seconds until the glue is dry.</p>	
4	<p>Stick the left-hand part of the fuselage (F2) to the part assemble until Step 3. You just need to drop a litter bit of glue along the contact area, assemble it to the part completed at Step 3, and hold them tight for 30-40 seconds until the glue is dry.</p>	

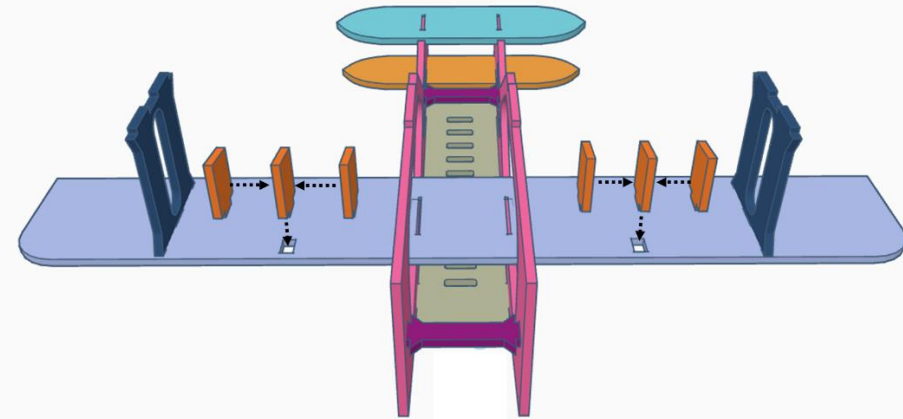
5	<p>Attach aircraft head (F7) to the part completed at Step 4. You just need to drop a litter bit of glue along the contact area, insert it to the part completed at Step 4, and hold them tight for 30-40 seconds until the glue is dry.</p>	 A 3D perspective diagram showing a pink, multi-part aircraft fuselage assembly. Below it is a flat, orange, oval-shaped base plate. Two dashed lines with arrows point from the base plate up to the bottom of the fuselage assembly, indicating the alignment and placement of the base plate onto the fuselage.
6	<p>Attach aircraft head (F6) to the part completed at Step 5. You just need to drop a litter bit of glue along the contact area, insert it to the part assemble until Step 5, and hold them tight for 30-40 seconds until the glue has dried.</p>	 A 3D perspective diagram showing the pink fuselage assembly from the previous step. Above it is a dark blue, oval-shaped aircraft head. Two dashed lines with arrows point from the head down to the front of the fuselage, indicating the alignment and placement of the head onto the fuselage.

7	<p>Attach lower wing (W2) to the part completed at Step 6. You just need to drop a litter bit of glue along the contact area, assemble it to the part completed at Step 6, and hold them tight for 30-40 seconds until the glue is dry.</p>	 <p>A 3D perspective view of a pink fuselage assembly. A long, dark blue wing section is being positioned horizontally across the top of the fuselage. Two vertical dashed arrows point downwards from the wing to the fuselage, indicating the contact area for gluing. A small brown rectangular piece is visible on the left side of the fuselage.</p>
8	<p>Stick the wing supporters (W3 and W4) to the lower wing (W2). You just need to drop a litter bit of glue along the contact area, insert them to the lower wing, and hold them tight for 30-40 seconds until the glue is dry.</p>	 <p>A 3D perspective view of the assembly from a different angle. The pink fuselage is shown with a light blue wing section attached. Two dark blue U-shaped wing supporters are being positioned above the wing. Dashed arrows point from each supporter down to the wing, indicating where to apply glue. The fuselage has a teal-colored tail section and orange-colored landing gear.</p>



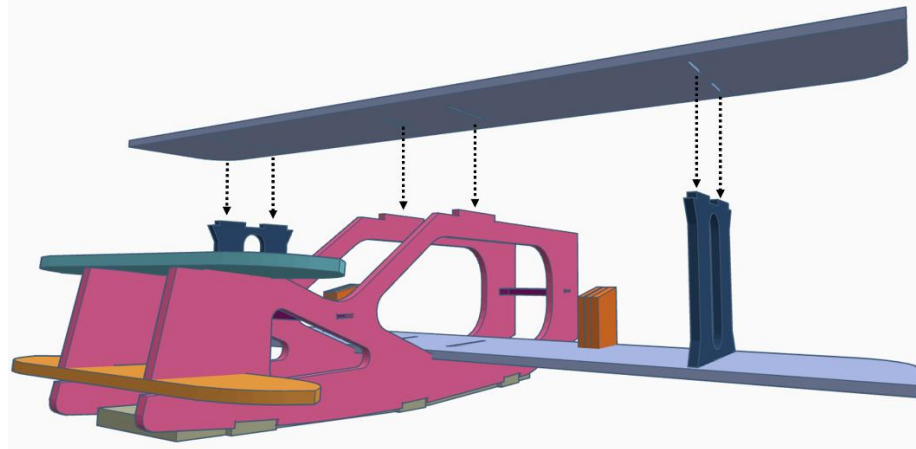
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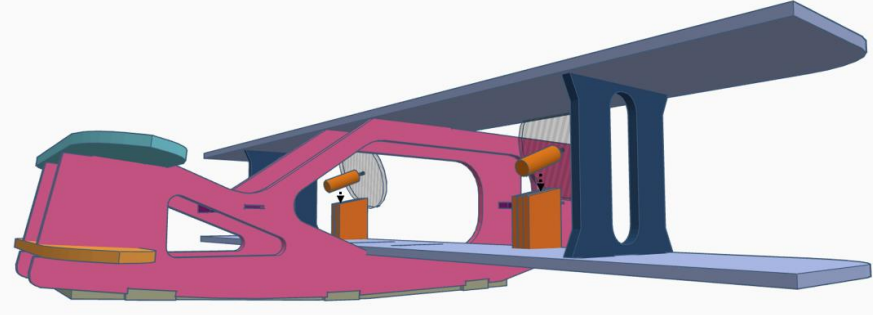
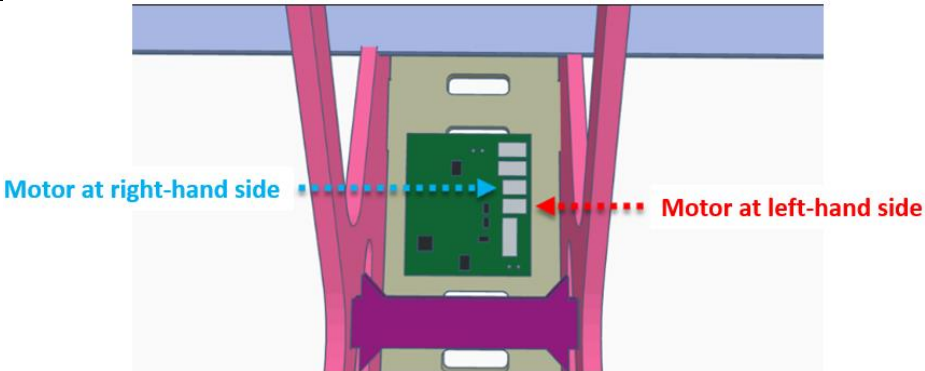
Attach two sets of motor mount (M1, M2, M3, M4, M5, and M6) to the lower wing. M1, M2, and M3 are for left motor mount. M4, M5, and M6 are for right motor mount. Please be aware of that M2 (in the middle) is a little bit shorter than M1 and M3. So is M5 to M4 and M6. You just need to drop a litter bit of glue along the contact area, insert them to the lower wing, and hold them tight for 30-40 seconds until the glue is dry.





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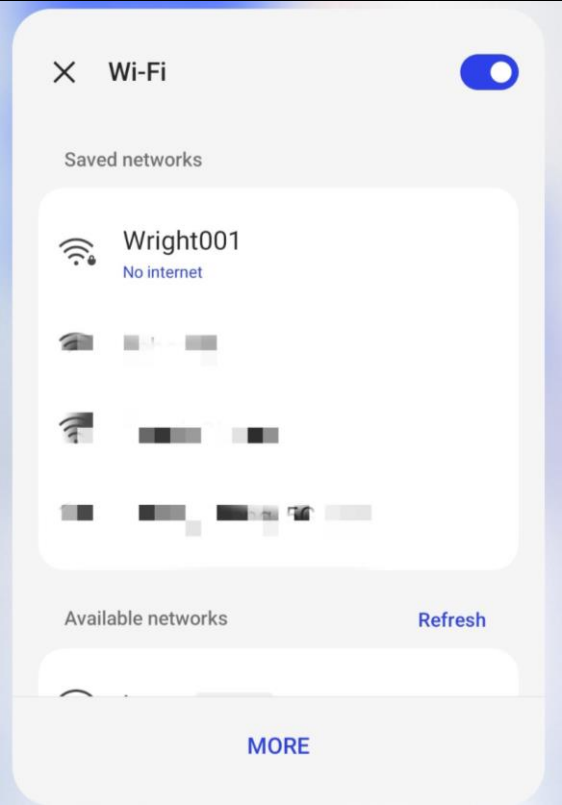
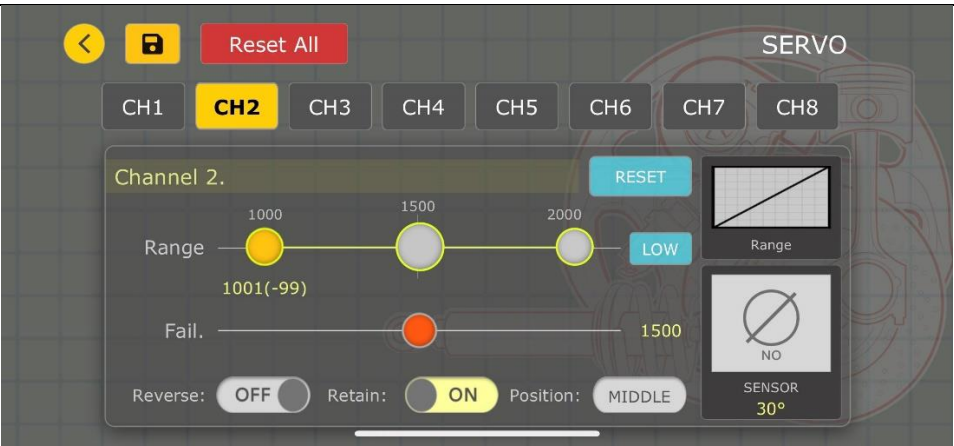
Stick upper wing to the part completed at Step 9. You just need to drop a litter bit of glue along the contact area, put it on the part competed at Step 9, and hold them tight for 30-40 seconds until the glue is dry.



11	<p>Use glue to stick left and right DC motors on the motor mounts. Then, use tape to hold them tight.</p>	
12	<p>Plug motors on Li-Gyro flight controller according to the figure shown on the right-hand side.</p>	 <p>Motor at right-hand side</p> <p>Motor at left-hand side</p>

## IV. V7RC APP installation

1	<p>Install V7RC APP (the links listed at the end of this chapter). Enter the control UI page of V7RC APP, and click gear icon to enter control center.</p>	
2	<p>In control center, set parameters according to the following information:</p> <p>NETWORK: WIFI</p> <p>IP: 192.168.4.1</p> <p>Port: 6188</p> <p>CONTROL: TANK</p> <p>(Note: please click “Save” button when IP and Port have been filled)</p>	

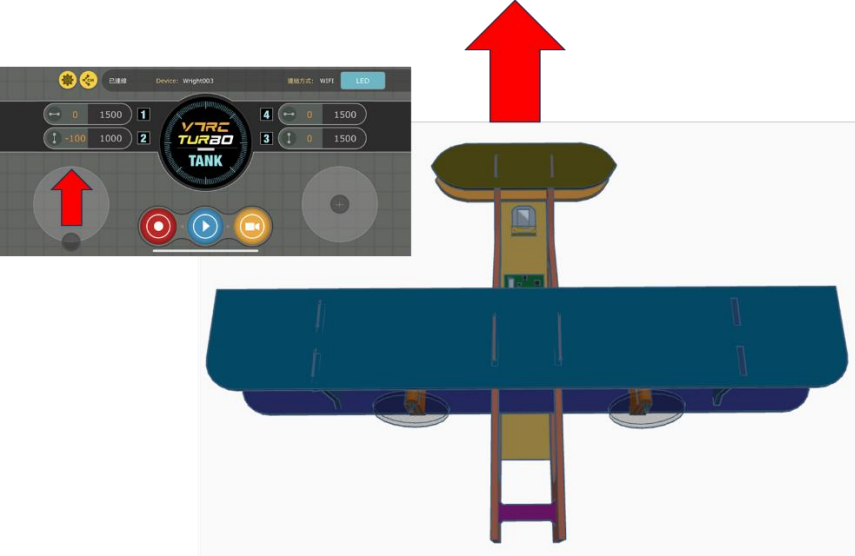
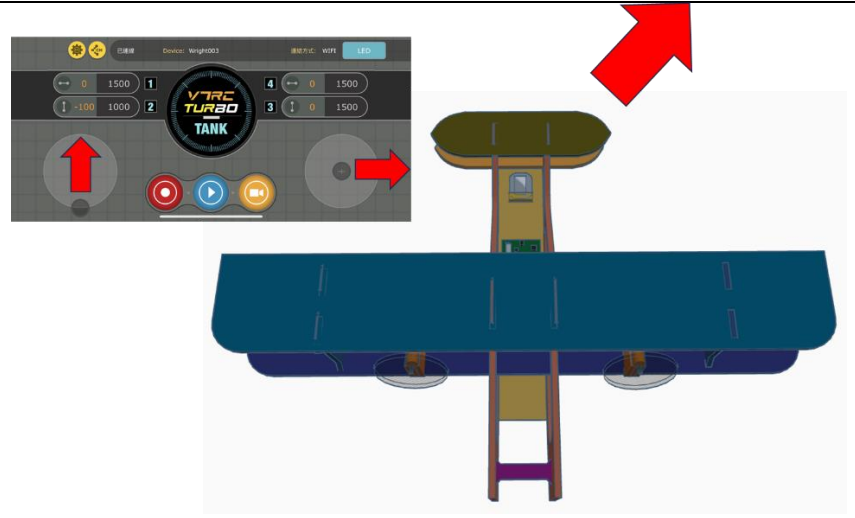
3	<p>Click DEVICE to enter Wi-Fi configuration page. Search SSID for name with initial of “Wright”, like Wright001. Click connect and fill password (which is the same as SSID). If there is a warning popped up to indicate that there is not internal for the Wi-Fi connection, please ignore it and click confirm directly to keep Wi-Fi connection to Li-Gyro.</p>	
4	<p>Scroll down to find SERVO and click SETUP to enter SERVO configuration page. First, select tab “CH2”. Set Retain as ON and Position as LOW.</p>	

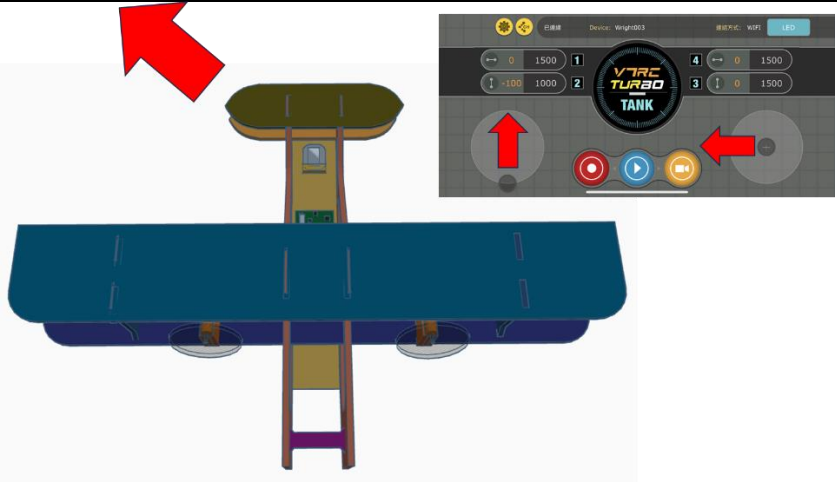
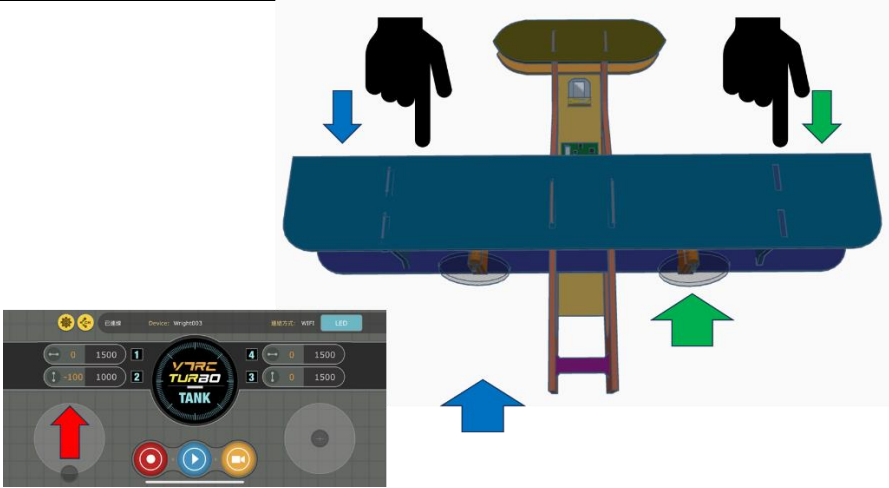
5	Then, selection tab “CH4”. Set Retain as OFF and Position as MIDDLE.	 <p>The screenshot shows the 'SERVO' control interface for Channel 4. At the top, there are tabs for CH1 through CH8, with CH4 selected. A 'Reset All' button is in the top left. The main area for Channel 4 includes a 'Range' slider with markers at 1000, 1500, and 2000. Below the slider, the values are 1000(-100), 1500(0), and 2000(100). A 'Fail' indicator is shown as a red dot. The 'Reverse' toggle is OFF, 'Retain' is OFF, and 'Position' is MIDDLE. On the right, there are two graphs: 'Range' and 'NO', and a 'SENSOR' reading of 30°.</p>
6	Return back to control UI page and enjoy the fly.	 <p>The screenshot shows the 'VTRC TURBO TANK' control UI. At the top, it indicates '已連線' (Connected) and 'Device: Wright003'. The connection method is 'WIFI' and there is an 'LED' button. The interface features a central circular gauge with the text 'VTRC TURBO TANK'. Below the gauge are four channel controls, each with a slider and a button. The sliders are set to 0 and 1500. At the bottom, there are two large joysticks and three action buttons (red, blue, orange).</p>

V7RC APP link:

- Android: [https://play.google.com/store/apps/details?id=com.v7idea.v7rcliteandroidsdkversion&hl=zh\\_TW&gl=US](https://play.google.com/store/apps/details?id=com.v7idea.v7rcliteandroidsdkversion&hl=zh_TW&gl=US)
- iOS: <https://apps.apple.com/tw/app/v7rc/id1390983964>

## V. Functionality test

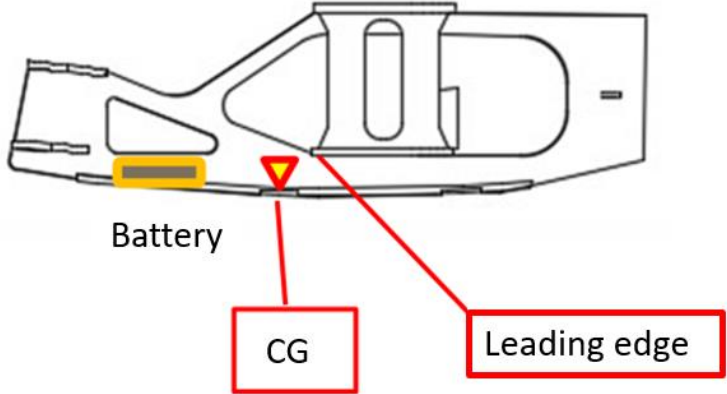
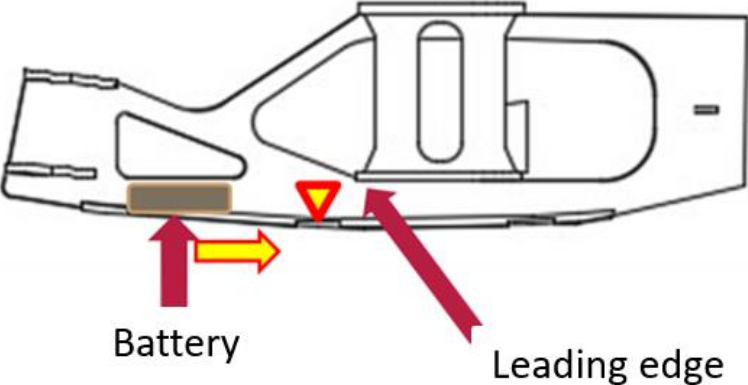
<p>1</p>	<p>Throttle test: put Wright Flyer on the ground. Push throttle up and check if Wright Flyer is moving straight forward, as the red arrow shows.</p>	 <p>The screenshot shows the VTRC TURBO TANK interface. On the left, a joystick is shown with a red arrow pointing upwards, indicating the throttle is being pushed up. On the right, a 3D model of the Wright Flyer is shown with a red arrow pointing straight forward, indicating the aircraft's movement.</p>
<p>2</p>	<p>Right turn test: put Wright Flyer on the ground. Push throttle up and push aileron to the right. Ensure that Wright Flyer is turning right, as the red arrow shows.</p>	 <p>The screenshot shows the VTRC TURBO TANK interface. On the left, a joystick is shown with a red arrow pointing upwards, indicating the throttle is being pushed up. On the right, a joystick is shown with a red arrow pointing to the right, indicating the aileron is being pushed right. On the far right, a 3D model of the Wright Flyer is shown with a red arrow pointing diagonally upwards and to the right, indicating the aircraft is turning right.</p>

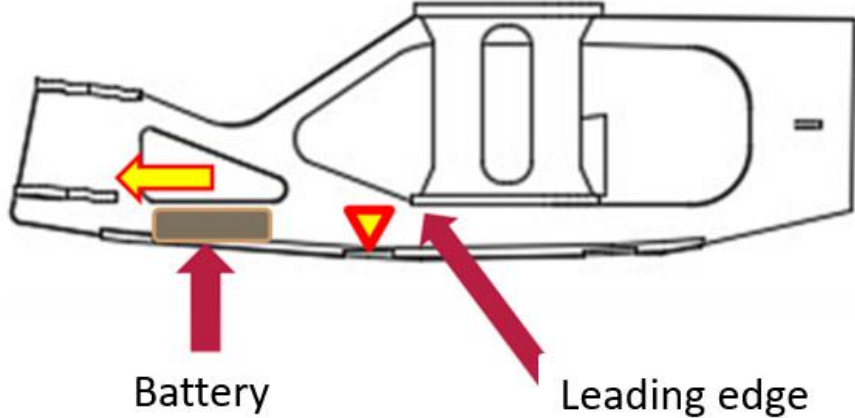

<p>3</p>	<p>Left turn test: put Wright Flyer on the ground. Push throttle up and push aileron to the left. Ensure that Wright Flyer is turning left, as the red arrow shows.</p>	
<p>4</p>	<p>Gyro test:</p> <ul style="list-style-type: none"> <li>➤ Preamble: put Wright Flyer on the ground. Push throttle up to make DC motors turning but do not have enough power to make Wright Flyer moving.</li> <li>➤ Compensation test for bias to the right: use your finger to push the leading edge of the right wing and observe if the rotation speed of the right motor increases to pull Wright Flyer back to the center (as the green arrow shows).</li> <li>➤ Compensation test for bias to the left: use your finger to push the leading edge of the left wing and observe if the rotation speed</li> </ul>	



of the left motor increases to pull Wright Flyer back to the center (as the blue arrow shows).	
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## VI. Tuning

1	<p>Before flying the plane, you need to adjust the location of the battery to locate CG (Center of Gravity) at the right position, which is about 1cm in front of leading edge of the wing.</p>	 <p>The diagram shows a side profile of an aircraft fuselage. A yellow rectangular battery is positioned on the underside of the fuselage. A red triangle labeled 'CG' (Center of Gravity) is located just behind the battery. A red line points from the 'Leading edge' label to the front edge of the wing. The labels 'Battery', 'CG', and 'Leading edge' are each enclosed in a red rectangular box.</p>
2	<p>Do launching and landing test to see if the aircraft can glide well. If the plane flies toward ground, it indicates that the CG is too close to the front. Then, the battery should be move backward.</p>	 <p>The diagram shows the same aircraft fuselage as in the first diagram. The battery is now a brown rectangle. A thick red arrow points from the battery towards the rear of the fuselage, indicating movement. A yellow arrow points from the battery towards the right, indicating a shift in position. The 'Leading edge' label is also present with a red arrow pointing to the wing's front edge.</p>

<p>3 If the plane ascends too quickly, it indicates that the CG is too close to the back. Therefore, the battery should be moved forward.</p>	 <p>The diagram shows a side profile of a model airplane. A yellow arrow points left from the tail section, indicating the direction of movement for the battery. A red arrow points up to a brown rectangular battery located on the fuselage. Another red arrow points down to the leading edge of the wing. A red triangle is positioned on the fuselage between the battery and the leading edge, likely representing the center of gravity (CG).</p> <p>Battery</p> <p>Leading edge</p>
<p>4 Find an open area to practice launching and landing. Do not fly too high for your first trials. Moreover, do not fly an aircraft when it is windy.</p>	 <p>The illustration depicts a wide, green grassy field in the foreground. In the background, there is a dark silhouette of a city skyline with various buildings and a crane. The sky is a light blue color.</p>