READ THROUGH THIS MANUAL
BEFORE STARTING CONSTRUCTION.
IT CONTAINS IMPORTANT INSTRUCTIONS
AND WARNINGS CONCERNING THE
ASSEMBLY AND USE OF THIS MODEL.
INTRODUCTION

If you are looking to put some excitement in your flying, the CrazE Wing is for you. It can go from slow and mild to all out wild in a second. The CrazE Wing assembles quick and easy. You will be flying in just a few hours. So let’s get the components needed to finish the plane and get started.

For the latest technical updates or manual corrections for the CrazE Wing ARF visit the Tower Hobbies web site at towerhobbies.com and visit the page for the CrazE Wing. If there is new technical information or changes to this model a “tech notice” box will appear on the page.

As a new owner of an unmanned aircraft system (UAS), you are responsible for the operation of this vehicle and the safety of those around you. Please contact your local authorities to find out the latest rules and regulations.

In the United States, please visit:

knowbeforeyoufly.org    faa.gov/uas

Academy of Model Aeronautics

We urge you to join the AMA (Academy of Model Aeronautics) and a local R/C club. The AMA is the governing body of model aviation and membership is required to fly at AMA clubs. Though joining the AMA provides many benefits, one of the primary reasons to join is liability protection. Coverage is not limited to flying at contests or on the club field. It even applies to flying at public demonstrations and air shows. Failure to comply with the Safety Code (excerpts printed in the back of the manual) may endanger insurance coverage. Additionally, training programs and instructors are available at AMA club sites to help you get started the right way. There are over 2,500 AMA chartered clubs across the country. Contact the AMA at the address or toll-free phone number that follows.

Academy of Model Aeronautics
5151 East Memorial Drive
Muncie, IN 47302-9252
Tele. (800) 435-9262
Fax (765) 741-0057

Or via the Internet at: www.modelaircraft.org

IMPORTANT: Two of the most important things you can do to preserve the radio controlled aircraft hobby are to avoid flying near full-scale aircraft and avoid flying near or over groups of people.

SAFETY PRECAUTIONS

Protect Your Model, Yourself & Others...
Follow These Important Safety Precautions

1. Your CrazE Wing ARF should not be considered a toy, but rather a sophisticated, working model that functions very much like a full-size airplane. Because of its performance capabilities, the CrazE Wing ARF, if not assembled and operated correctly, could possibly cause injury to yourself or spectators and damage to property.

2. You must assemble the model according to the instructions. Do not alter or modify the model, or use larger than recommended power systems, as doing so may result in an unsafe or unflyable model. In a few cases the instructions may differ slightly from the photos. In those instances the written instructions should be considered as correct.
3. You must take time to build straight, true and strong.
4. You must use an R/C radio system that is in first-class condition.
5. You must correctly install all R/C and other components so that the model operates correctly on the ground and in the air.
6. You must check the operation of the model before every flight to insure that all equipment is operating and that the model has remained structurally sound. Be sure to check clevises or other connectors often and replace them if they show any signs of wear or fatigue.
7. If you are not an experienced pilot or have not flown this type of model before, we recommend that you get the assistance of an experienced pilot in your R/C club for your first flights. If you’re not a member of a club, your local hobby shop has information about clubs in your area whose membership includes experienced pilots.

We, as the kit manufacturer, provide you with a top quality, thoroughly tested kit and instructions, but ultimately the quality and flyability of your finished model depends on how you build it; therefore, we cannot in any way guarantee the performance of your completed model, and no representations are expressed or implied as to the performance or safety of your completed model.

REMEMBER: Take your time and follow the instructions to end up with a well-built model.

ADDITIONAL ITEMS REQUIRED

Radio Components
A 3-channel radio with elevon (sometimes called delta), an Electronic Speed Control and two mini servos with 38oz. of torque are required to fly the CrazE Wing ARF. The Tactic TTX650 6-channel or Futaba 6J 6-channel radio system are great low cost radio systems perfect for the CrazE Wing ARF.
- TACJ2650 Tactic TTX650 6-channel SLT Computer Transmitter
- FUTK6000 Futaba 6J 6-channel S-FHSS System
- (2) FUTM0415 Futaba S3115 Micro Precision Servo
- (2) FUTM0034 Futaba S3102 Aircraft Micro Metal Gear Servo
- TOWG2000 Tower Hobbies Electric Motor 30-35-1000
- FLZA6612 Flyzone 40A Select Scale ESC
- FLZA6614 Flyzone Prop Adapter
- GPMQ4480 1" x 6" Velcro

Propellers
- 3S LiPo – APCQ4118 9x6E or APCQ4119 9x7.5E
- 4S LiPo – APCQ4116 8x8E

Battery and Charger
- A 3S to 4S 1800mAh – 2200mAh LiPo battery is required to power the CrazE Wing ARF.
- ElectriFly 3S 1800mAh 30C (GPMP0855)
- ElectriFly 3S 2200mAh 30C (GPMP0861)
- FlightPower 3S 1800mAh 50C (FPWP5183)
- FlightPower 3S 2200mAh 30C (FPWP3223)
- FlightPower 3S 2200mAh 50C (FPWP5223)
- ElectriFly 4S 2200mAh 30C (GPMP0862)
- FlightPower 4S 2200mAh 30C (FPWP3224)

Most modelers may already have a suitable LiPo charger, but for those that do not, the Duratrax Onyx 235 AC/DC Advanced Peak Charger (DTXP4235) is one of the suitable chargers recommended. The Onyx charger is perfect for 3 and 4S batteries used with the CrazE Wing ARF and may be powered either by an external DC power source (such as a 12V battery), or a 110V AC outlet. The Onyx also has an adjustable charge rate to charge your batteries in as little as a half-hour or less (depending on the condition of your batteries and manufacturer’s specified charge rate). The Onyx can also charge larger batteries and batteries other than LiPo, so it is a versatile charger you can grow into. The 235 also has an LCD digital display screen, so you can see how much capacity it took to recharge the battery (required for monitoring the condition of your batteries and calculating how long you can fly).

Adhesives and Building Supplies
- Tower Hobbies 6-minute Epoxy (TOWR3806)
- Mixing Sticks (50, GPMR8055)
- Mixing Cups (GPMR8056)
- Tower Hobbies Build-It CA Thin Glue (TOWR3800)
- Denatured Alcohol (for epoxy clean-up)
- Masking Tape
- 5/64" (2mm) drill bit
- Drill
- Phillips head screwdriver
- Wire Cutters
- Pliers
- Stick-on segmented weights (GPMQ4485)
- Medium T-pins (HCAR5150)
- CG Machine (GPMR2400)
- Paper Towels

Hardware and Accessories
- 21st Century Sealing Iron (COVR2700)
- 21st Century Hot Sock (COVR2702)
KIT INSPECTION

Before starting to build, take an inventory of this kit to make sure it is complete, and inspect the parts to make sure they are of acceptable quality. If any parts are missing or are not of acceptable quality, or if you need assistance with assembly, contact Order Assistance.

Order Assistance  Ph: (800) 637-6050
Fax: (217) 398-7721
E-mail: airsupport@towerhobbies.com

CONTENTS

1. Wing
2. Motor/Battery Box
3. Vertical Fin

Hardware not shown:
(2) Large nylon control horn
(2) Nylon control horn back plate
(2) Nylon clevis
(2) Nylon Faslink
(2) Silicone clevis keeper

(2) 2-56 x 6" [152 mm] wire pushrod
(4) Hardwood servo mounting blocks
(4) 2-56 x 3/8 [9.5 mm] Machine Screw
(4) #2 x 3/8" [9.5 mm] Sheet Metal Screw
(4) 3 x 10 mm Machine Screw
**PREPARATION**

Use a covering iron set to about 300° F with a covering sock to go over the model, tightening the covering where necessary.

**NOTE:** This covering material requires less heat than you may be used to. Excessive heat will cause the covering to pull away from the seams or may even cause the parts to bend.

**ASSEMBLY**

**IMPORTANT:** When installing sheet metal screws into wood, first drill a pilot hole, install the screws, remove the screws and harden the threads in the wood with thin CA, then reinstall the screws.

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**Install the Servos**

1. Install the grommets in the two aileron servos.
2. Cut the two servo arm gauges from the back of this instruction manual.
3. Follow your transmitter instructions for setting up a delta wing plane.
   a. Connect the servos to the appropriate channels on the receiver and temporarily connect the ESC to the receiver.
   b. Switch on the transmitter and connect the motor battery to the ESC.
   c. Center the trims on the transmitter.
   d. Using the servo arm gauges, install a servo arm on both servos as shown.
   e. Unplug the motor battery and switch off the transmitter.
4. Position the servos so that the servo arms are centered in the openings of the radio compartment hatch.
5. Glue the servo mounting blocks.
6. Secure the servos.
7. Install the servo hatch.

8. Install the nylon clevis.

9. Attach the clevis.

10. Install the control horn.

11. Cut out the reflex gauge from the back of this instruction manual.
12. Use a piece of masking tape to hold the elevon in position.

13. Mark the pushrod.

14. Make an L-bend at the mark.

15. Attach the clevis in the 4th hole of the control horn. Secure the L-bend to the servo arm with a Faslink.

16. Install the pushrod and control horn on the second elevon.

17. Mount the receiver in the front of the servo compartment with Velcro (not included). Secure the antennas following the manufacturer’s recommendations.
Install the Motor

1. Use epoxy to glue the motor box on the front of the wing.

2. Install the motor. If using a different motor than we recommend, use the existing holes to locate new holes and re-use the blind nuts by knocking them out.

3. Connect the ESC to the motor and the receiver. Switch on the transmitter and plug the motor battery into the ESC. Check that the motor is rotating in the correct direction. The ESC can be attached to the side of the motor box with Velcro (not included).

Check the Control Directions

It will be easier to adjust the control throws before installing the two vertical fins.

3-CHANNEL RADIO SET UP (STANDARD MODE 2)

RIGHT ELEVON MOVES UP,
LEFT ELEVON MOVES DOWN

FULL THROTTLE
BOTH ELEVONS MOVE DOWN

1. With the transmitter on and the motor battery plugged into the ESC, make sure the elevons move correctly as shown in the diagram.

NOTE: Use the servo reversing function to change the servo direction if needed. If changing the servo reversing function for one operation causes the other operation to be reversed, switch the two servo leads where they plug into the receiver. Then, use the reversing function to correct the servo direction.

Use a ruler to measure and set the control throw of the elevons as indicated in the chart that follows.

NOTE: The throws are measured at the widest part of the elevons.
These are the recommended control surface throws:

<table>
<thead>
<tr>
<th></th>
<th>HIGH RATE</th>
<th>LOW RATE</th>
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<tbody>
<tr>
<td>ELEVATOR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up</td>
<td>3/4&quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td></td>
<td>[19 mm]</td>
<td>[12.5 mm]</td>
</tr>
<tr>
<td></td>
<td>16°</td>
<td>10°</td>
</tr>
<tr>
<td>Down</td>
<td>3/4&quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td></td>
<td>[19 mm]</td>
<td>[12.5 mm]</td>
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<td></td>
<td>16°</td>
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<tr>
<td>AILERONS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up</td>
<td>1-7/8&quot;</td>
<td>3/4&quot;</td>
</tr>
<tr>
<td></td>
<td>[47.5 mm]</td>
<td>[19 mm]</td>
</tr>
<tr>
<td></td>
<td>34°</td>
<td>16°</td>
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<tr>
<td>Down</td>
<td>1-7/8&quot;</td>
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<td>[19 mm]</td>
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<td></td>
<td>34°</td>
<td>16°</td>
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60% exponential was used on the high rate.
30% exponential was used on the low rate.

**IMPORTANT:** The CrazE Wing has been extensively flown and tested to arrive at the throws at which it flies best. Flying your model at these throws will provide you with the greatest chance for a successful first flight. If, after you have become accustomed to the way the CrazE Wing flies, you would like to change the throws to suit your taste that is fine. However, too much control throw could make the model difficult to control, so remember, “more is not always better.”

!!! WARNING !!!

**Set the Failsafe**

With electric planes, once the motor battery is connected to the ESC the motor can come on at anytime causing damage or serious injury. If the failsafe is not set and the transmitter is switched off before the motor battery is disconnected, the motor could come on. Review the instructions included with your radio system for setting the failsafe.

**Setting the Tactic TR625 receiver failsafe:**

- 1. Switch on the transmitter and connect the motor battery to the ESC.
- 2. Make sure the throttle stick is down.
- 3. Press and hold the “Link” button on the receiver until the red LED goes out and then release the button and the red LED should come back on.
- 4. Check the failsafe operation. To arm the motor the throttle stick must be in the down position. If the throttle stick is not, the motor will beep. Once the throttle stick is moved to the down position the motor is ready to run. With the transmitter switched on and the motor battery connected, move the throttle stick so that the motor is running slowly. Switch off the transmitter and the motor will stop if the failsafe is set correctly. If it does not stop, repeat the failsafe setting procedure.

- 2. Use a T-pin to poke several holes in the tabs of the vertical fins or carefully trim the covering off. Do not cut into the balsa.

- 3. Use epoxy to glue the vertical fins in the wing.

- 4. Install the collet type prop adapter.
5. Install the propeller. Tighten the prop nut.
6. Apply Velcro to the bottom of the motor box and the motor battery.
7. Place the motor battery in the motor box. DO NOT connect the battery to the ESC.

**Apply the Decals**

1. Be certain the model is clean and free from oily fingerprints and dust. Prepare a dishpan or small bucket with a mixture of liquid dish soap and warm water – about ½ teaspoon of soap per gallon of water. Submerge one of the decals in the solution and peel off the paper backing. Note: Even though the decals have a “sticky-back” and are not the water transfer type, submerging them in soap and water allows accurate positioning and reduces air bubbles underneath.
2. Position the decal on the model where desired. Holding the decal down, use a paper towel to wipe most of the water away.
3. Use a piece of soft balsa or something similar to squeegee remaining water from under the decal. Apply the rest of the decals the same way.

**Check the C.G. (Center of Gravity)**

DO NOT OVERLOOK THIS IMPORTANT PROCEDURE. A model that is not properly balanced will be unstable and possibly unflyable.

The CG is 1-1/4" (31mm) to 1-7/8" (47mm) from leading edge.

1. Mark the C.G. range on the top of the motor box.

2. With the plane ready to fly, motor battery installed, use a Great Planes C.G. Machine or apply narrow (1/16" [2mm]) strips of tape at the front and rear C.G. locations so you will be able to feel them when lifting the model with your fingers to check the C.G. location. **Do not at any time balance the model outside this C.G. range.**

3. If the CrazE Wing does not balance within the recommended range, reposition the battery to get the model to balance. Once the correct battery location has been determined, mark the location on the inside of the fuselage so that the battery can be installed in the same location every time. If the plane still does not balance after moving the battery, use Great Planes Stick-on Segmented weights to balance the plane.
**PREFLIGHT**

**Identify Your Model**

You should always have your name, address, telephone number, AMA and FAA number on or inside your model. It is required at all AMA R/C club flying sites and AMA sanctioned flying events. Fill out the identification tag on page 12 and place it on or inside your model.

**Charge the Batteries**

Follow the battery charging instructions that came with your radio system to charge the batteries. You should always charge your transmitter batteries the night before you go flying and at other times as recommended by the radio manufacturer.

**CAUTION:** Unless the instructions that came with your radio system state differently, the initial charge on a new transmitter battery should be done for 15 hours using the slow-charger that came with the radio system. This will “condition” the batteries so that the next charge may be done using the fast-charger of your choice. If the initial charge is done with a fast-charger, the batteries may not reach their full capacity and you may be flying with batteries that are only partially charged.

**Ground Check and Range Check**

Follow the radio manufacturer’s instructions to ground check the operational range of your radio before the first flight of the day. This should be done once with the motor off and once with the motor running at various speeds. If the control surfaces do not respond correctly, do not fly. Find and correct the problem first. Look for loose servo connections or broken wires, corroded wires or connectors or try relocating the receiver and antennas.

**ELECTRIC MOTOR SAFETY PRECAUTIONS**

**ALWAYS** Wear safety glasses whenever running motors.

**ALWAYS** Keep your face and body as well as all spectators away from the plane of rotation of the turning propeller.

**ALWAYS** Keep loose clothing and objects such as pencils or screwdrivers that may fall out of a shirt or jacket pockets away from the prop.

**NEVER** touch the motor during or right after operation. The motor gets HOT!

**ALWAYS** remove the propeller from the plane when working on it if the motor batteries will be connected.

**ALWAYS** remove the motor batteries from the plane when charging.

**ALWAYS** follow the charging instructions included with your charger for charging LiPo batteries. LiPo batteries can cause serious damage if misused.

**ALWAYS** make sure the fail safe is set on your radio to prevent the motor from starting if the signal is lost. Once the motor batteries are connected, the motor can start at anytime.

**ALWAYS** unplug the motor batteries first.

**NEVER** switch off the transmitter with the motor batteries plugged in.

**WARNING:** Read the entire instruction sheet included with your motor batteries. Failure to follow the instructions could cause permanent damage to the batteries and its surroundings and cause bodily harm.

**ALWAYS** use an LiPo approved charger.

**NEVER** use a NiCd/NiMH peak charger to charge a LiPo battery.

**NEVER** charge in excess of 4.20V per cell.

**ALWAYS** charge through the “charge” lead.

**NEVER** charge through the “discharge” lead.

**NEVER** charge at currents greater than 1C unless the battery is rated for a higher charge rate.
**ALWAYS** set the charger’s output volts to match the battery volts.

**ALWAYS** charge a LiPo battery in a fireproof location.

**NEVER** trickle charge a LiPo battery.

**NEVER** allow the battery temperature to exceed 150 degrees F (65 degrees C).

**NEVER** discharge below 2.7V per cell

**NEVER** place the battery or charger on combustible materials or leave it unattended during charge or discharge.

**ALWAYS** KEEP OUT OF THE REACH OF CHILDREN.

**NEVER** charge the battery in the plane.

**ALWAYS** remove the battery from the plane after a crash. Set it aside in a safe location for at least 20 minutes. If the battery is damaged in the crash it could catch fire.

**ALWAYS** move the battery to a safe location, preferably outside, if it starts to swell. Place it in a bucket and cover it with sand. Never use water to try and put out a LiPo fire.

**FLIGHT TIPS**

**Takeoff**

Before the first flight make sure all the controls are moving in the correct direction. For the first flight it is best to have an assistant hand launch the plane. This will allow you to concentrate on trimming the plane. Have your assistant hold the plane by the motor box in front of the wing leading edge. With the throws set on low rate, slowly advance the throttle while having your assistant launch the plane into the wind at a nose-level or slightly nose-up attitude. Gain some altitude, keeping the wings level. Once at a comfortable altitude, trim the elevons for straight and level flight. Once the plane has been trimmed future hand launches will be easy.

**Flight**

It is a good idea to have a timer set on your transmitter, wrist watch or cell phone. We found that the plane can fly for 5-minutes or more on a 4S 2200mAh LiPo battery. Set the timer for 4-minutes for the first few flights. When recharging the battery note how much capacity was put back into the battery. To maintain the performance of LiPo batteries no more than 80% of the capacity should be drained from the battery on a flight. Adjust the timer as needed.

The plane flies well at slow speed, but the fun is at high speeds. The plane can be flown at full throttle and full aileron or elevator can be applied. Make sure you have plenty of altitude when you do this the first time. Rolls are very fast and losing orientation is easy.

**Landing**

As said before, the plane flies well at slow speeds. When coming in for a landing, point the plane into the wind, reduce the throttle and let the plane settle in. Just before touch-down add a small amount of up elevator to flair.