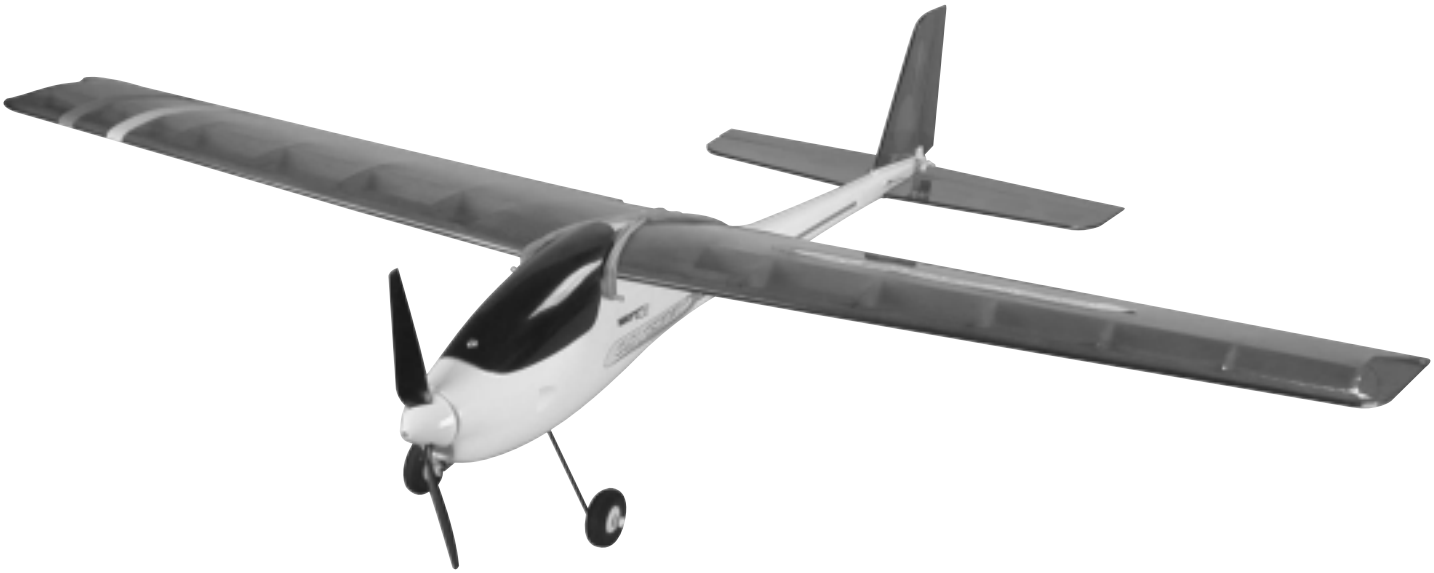
ODYSSEY EP ARF

Electric-Powered Full-House Park Flyer



Brought to You By:

WATTAGE

INSTRUCTIONS FOR FINAL ASSEMBLY

The Wattage Odyssey EP ARF is distributed
exclusively by Global Hobby Distributors
18480 Bandilier Circle, Fountain Valley, CA 92708

GLOBAL

Kit Product Number 128395

Specifications:

- **Wing Span:** 33 Inches
- **Wing Area:** 165 Square Inches
- **Length:** 27 Inches
- **Weight RTF:** 12 Ounces
- **Wing Loading:** 10.5 Ounces Per Square Foot
- **Functions:** Ailerons, Elevator, Rudder & Throttle
- **Power:** 180 Motor w/Gear Box & Propeller
- **Radio Required:** 4Ch or More Micro w/3 Micro Servos
- **ESC Required:** 5 Amp Micro
- **Battery Required:** 7 - 8 Cell 300Mah 2/3AAA NiMH

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SAFETY WARNING

This R/C airplane is not a toy! If misused or abused, it can cause serious bodily injury and/or damage to property. Fly only in open areas and preferably at a dedicated R/C flying site. We suggest having a qualified instructor carefully inspect your airplane before its first flight. Please carefully read and follow all instructions included with this airplane, your radio control system and any other components purchased separately.

FOR YOUR INFORMATION

To make your modeling experience totally enjoyable, we recommend that you get experienced, knowledgeable help with assembly and during your first flights. Your local hobby shop has information about flying clubs in your area whose membership includes qualified instructors. If there is no hobby shop in your area, we recommend that you contact the AMA at the address below. They will be able to help you locate a flying field near you.

Academy of Model Aeronautics
5151 East Memorial Drive
Muncie IN 47302-9252
(800) 435-9262
www.modelaircraft.org

OUR GUARANTEE

Wattage guarantees this kit to be free from defects in both material and workmanship at the date of purchase. This does not cover any component parts damaged by use, misuse or modification. **In no case shall Wattage's liability exceed the original cost of the purchased kit.**

In that Wattage has no control over the final assembly or material used for final assembly, no liability shall be assumed for any damage resulting from the use by the user of the final user-assembled product. By the act of using the final user-assembled product, the user accepts all resulting liability.

INTRODUCTION

Thank you for purchasing the new Wattage Odyssey EP ARF. Before completing the final assembly of your new airplane, please carefully read through this instruction manual in its entirety. Doing so will ensure your success the first time around!

Wattage Odyssey EP ARF Special Features:

- Designed to Be the Perfect Sport Park-Flyer and Aileron Trainer
- Lightweight Balsa Built-Up Wing and Tail Surfaces
- Strong, High-Quality Molded Fuselage
- Wing and Tail Surfaces Covered with Transparent Iron-On Covering Material
- Heavy-Duty Landing Gear with Lightweight Wheels
- Preinstalled 180 Motor w/Gear Box and Propeller
- Easy-to-Remove Canopy for Easy Battery Access
- All Hardware Included
- Fast & Easy Assembly - Over 20 High-Resolution Photos and Drawings Guide You

This instruction manual is designed to guide you through the entire final assembly process of your new airplane in the least amount of time possible. Along the way you'll learn how to properly assemble your new airplane and also learn tips that will help you in the future. We have listed some of our recommendations below. Please read through them before beginning assembly.

- Please read through each step before beginning assembly. You should find the layout very complete and straightforward. Our goal is to guide you through assembly without any of the headaches and hassles that you might expect.
- There are check boxes next to each step. After you complete a step, check off the box. This will help prevent you from losing your place.
- Cover your work table with brown paper or a soft cloth, both to protect the table and to protect the parts.
- Keep a couple of small bowls or jars handy to put the small parts in after you open the accessory bags.
- We're all excited to get a new airplane in the air, but take your time. This will ensure you build a straight, strong and great flying airplane.
- If you come across this symbol ☞, it means that this is an important point or an assembly hint.

Visit Our Website
http://globalservices.globalhobby.com

If you should find a part missing or damaged, or have any questions about assembly, please contact us at the address below:

Global Services
18480 Bandilier Circle
Fountain Valley CA 92708

Phone: (714) 963-0329 **Fax: (714) 964-6236** **Email: service@globalhobby.net**

To serve your needs better, please include your email address with any correspondence you send to us. Your email address will be added to our Customer Service Database so you will automatically receive free updates and tech notices for your particular product. You will also receive repair status updates (if applicable) and other important information about your product as it becomes available.

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Global Hobby Distributors will not disclose the information it collects to outside parties. Global Hobby Distributors does not sell, trade, or rent your personal information to others . Your privacy is important to us.

SECTION 1: OUR RECOMMENDATIONS

This section describes our recommendations to help you in deciding which types of accessories to purchase for your new Odyssey EP ARF. **Please read through this entire section very carefully. We have provided you with tips and recommendations that, if followed, will result in a great flying airplane. Failure to follow our recommendations may result in a poor flying airplane.**

IMPORTANT When choosing accessories for your Odyssey EP ARF, such as servos, ESC, receiver and other related accessories, it's very important to take the weight of these items into consideration. Remember, the lighter the overall weight of the finished airplane, the better the airplane will fly.

What Servos Do I Use?

The servos you use should be the lightest available, yet still have an adequate amount of torque. We suggest using servos that weigh no more than 0.29 ounces and have a torque rating of no less than 11 ounces per square inch. Cirrus CS-6.2 servos or Hitec HS-55 servos would be a perfect choice.

What Receiver Do I Use?

The receiver should be as light as possible, preferably 1/2oz. or less. Most four-channel micro receivers would be a good choice. If you plan on using the Hitec 555 Micro receiver or the Hitec Electron Micro receiver, we suggest removing the case to reduce the receiver's overall weight. If you do remove the case from your receiver we strongly suggest wrapping the receiver with heat-shrink material to protect the internal components.

Important Note: To save even more weight, you can use super-micro receivers such as the Cirrus MRX-4 or the Hitec Feather. Keep in mind, though, that these receivers don't feature the long range that full-size micro receivers do. Both the Cirrus MRX-4 and the Hitec Feather feature a usable range of approximately 1000 feet.

What Electronic Speed Control Do I Use?

The ESC you choose should be capable of handling approximately 5 amps continuous current. Again, lighter is better. Your ESC should weigh no more than .25 ounce including the wiring and plugs.

What Flight Battery Do I Use?

Through much testing with this power system and airframe combination, we have found that using a 7 - 8 cell 300Mah 2/3 AAA NiMH flight battery will result in the best overall performance. The 7 cell flight battery will be lighter than the 8 cell flight battery and less powerful, resulting in a smooth, slow-flying airplane. The 8 cell flight battery will be heavier than the 7 cell flight battery, but its extra power will provide for faster overall flight speed and the ability to fly basic aerobatics.

Important Note: You certainly can experiment with different flight battery configurations, but you do so at your own risk. Keep in mind that if you use larger, higher-capacity cells, the overall weight of the airplane will increase. If this weight increase is excessive, the overall integrity of the airframe could be compromised.

IMPORTANT INFORMATION ABOUT THE PREINSTALLED POWER SYSTEM

The Odyssey EP ARF includes a 180 size motor, gear box and propeller that, when used with a 7 or 8 cell flight battery, results in a continuous amp draw of under 5 amps. Using a larger propeller and/or more cells will result in an amp draw of over 5 amps, which could reduce the reliability and longevity of the power system.

OUR RECOMMENDATIONS, CONTINUED....

Here's a List of What We Used to Finish Our Odyssey EP ARF:

QTY. 1	759134	Hitec Electron 6 Micro Receiver
		Hitec Dual Conversion FM RX Crystal
QTY. 3	444035	Cirrus CS-6.2 Micro Servos
QTY. 1	128482	Wattage IC-5A Micro ESC
QTY. 1	128514	Wattage 7 Cell 300Mah 2/3AAA NiMH Flight Battery
QTY. 1	130108	Wattage PF-12 AC/DC Park Flyer Charger
QTY. 1	869020	Dubro Double-Sided Tape

Optional Items Include:

Cirrus MRX-4 Super-Micro Receiver
Wattage 8 Cell 300Mah 2/3AAA NiMH Flight Battery

IMPORTANT The Cirrus servos and Wattage ESC use a universal connector that is compatible with all name-brand radio control systems. The part number listed for the Hitec Electron 6 micro receiver is compatible with Hitec & Futaba radio control systems only. This receiver is also available for JR and Airtronics radio control systems.

When you purchase the Hitec Electron 6 micro receiver, you must also purchase a Hitec brand crystal compatible with the receiver. The crystal must also be on the same frequency as your transmitter. **Note that the Hitec Electron 6 micro receiver uses a dual conversion FM Hitec crystal.**

SECTION 2: TOOLS AND SUPPLIES REQUIRED

The tools and supplies listed below will be necessary to finish the assembly of your Odyssey EP ARF. We suggest having these items on hand before beginning assembly.

- ❑ Kwik Bond 5 Minute Epoxy # 887560
- ❑ Kwik Bond Thick C/A # 887510
- ❑ # 0 & # 1 Phillips Head Screwdrivers
- ❑ Magnum Z-Bend Pliers # 237473
- ❑ Wire Cutters
- ❑ Needle Nose Pliers
- ❑ Adjustable Wrench
- ❑ Excel Modeling Knife # 692801
- ❑ Scissors
- ❑ Electric or Hand Drill
- ❑ Assorted Drill Bits
- ❑ Ruler
- ❑ Pencil
- ❑ 220 Grit Sandpaper w/Sanding Block
- ❑ Masking Tape
- ❑ Paper Towels
- ❑ Rubbing Alcohol
- ❑ NHP Epoxy Mixing Sticks # 864204
- ❑ NHP Epoxy Mixing Cups # 864205

The preinstalled power system features a BEC style plug on the motor. The recommended Wattage IC-5A speed control and 7 cell 300Mah 2/3AAA NiMH flight battery also feature BEC style plugs. If the ESC and/or flight battery you choose to use do not feature BEC style plugs, you will need to either solder a compatible plug onto the motor or solder BEC style plugs onto your ESC and flight battery. If this is the case, you will also need a soldering iron, solder and heat-shrink tubing in addition to the items above.

SECTION 3: KIT CONTENTS

We have organized the parts as they come out of the box for easier identification during assembly. Before you begin assembly, group the parts as we list them below. This will ensure that you have all of the parts before you begin assembly and it will also help you become familiar with each part.

If you find any parts missing or damaged, please contact us at the address below:

Global Services
18480 Bandilier Circle
Fountain Valley CA 92708

On the Web
http://globalservices.globalhobby.com

Phone: (714) 963-0329 **Fax: (714) 964-6236** **Email: service@globalhobby.net**

AIRFRAME ASSEMBLIES

- ❑ (1) Fuselage w/Power System & Canopy
- ❑ (1) Right Wing Panel w/Aileron
- ❑ (1) Left Wing Panel w/Aileron
- ❑ (1) Horizontal Stabilizer w/Elevator

MISCELLANEOUS FUSELAGE PARTS

- ❑ (1) Main Gear Wire w/Wheels
- ❑ (2) M3 x 12 Wood Screws
- ❑ (1) Velcro® Strip
- ❑ (1) Decal Set

CONTROL SYSTEM ASSEMBLIES

- ❑ (2) 18" Pushrod Wires
- ❑ (2) 4" Pushrod Wires
- ❑ (2) Nylon Control Horns
- ❑ (2) Nylon Adjustable Control Horns
- ❑ (4) Nylon Pushrod Snap-Links

MISCELLANEOUS WING PARTS

- ❑ (1) Plywood Aileron Servo Tray
- ❑ (2) Rubber Bands

SECTION 4: REPLACEMENT PARTS

Wattage stocks a complete line of replacement parts for your Odyssey EP ARF. Listed below are the replacement parts that are available along with their respective part numbers for easy ordering convenience. We suggest ordering directly from your local dealer. If your dealer does not stock Wattage products, you can order directly from us at the address shown below:

Global Services
18480 Bandilier Circle
Fountain Valley CA 92708

On the Web
http://globalservices.globalhobby.com

Phone: (714) 963-0329 **Fax: (714) 964-6236**

Wattage Odyssey EP ARF - Complete	128395	Decal Set	145130
Instruction Manual	145123	180 Geared Motor System	131450
Wing Set	145124	Propeller for 180 Geared Motor System	131451
Fuselage Set	145125	Spinner & Adapter for 180 Geared Motor System	131452
Stabilizer Set	145126	Gear Box Only for 180 Geared Motor System	131453
Canopy	145127	180 Motor Only	131454
Landing Gear & Wheels Set	145128	Gear Set for 180 Geared Motor System	131455
Pushrod & Control Horn Set	145129		

SECTION 5: A NOTE ABOUT COVERING

The covering material used on the Wattage Odyssey EP ARF is real iron-on, heat-shrink covering material. It is possible with heat and humidity changes that the covering on your airplane may wrinkle or sag. This trait is inherent in all types of heat-shrink material. To remove any wrinkles you will need to purchase, or borrow from a fellow modeler, a heat iron. If you need to purchase one, the **Global Heat Sealing Iron # 360900** is recommended.

Follow this simple procedure to remove the wrinkles:

❑ Plug in and turn on the sealing iron to the medium-high temperature setting. Allow the iron to heat up for approximately 5 - 7 minutes.

❑ After the iron has reached temperature, lightly apply the iron to the wrinkled section of the covering. Move the iron slowly over the wrinkled section until the covering tightens and the wrinkles disappear. You will notice that the color of the covering will darken when it is heated. When the covering cools back down, it will return to its normal color.

☞ If the color layer smears from any of the seams the temperature of the iron is too hot. Turn the temperature dial down and wait about 5 minutes for the iron to adjust to the lower temperature. You can remove any color streaks using a paper towel soaked with a small quantity of acetone.

WARNING We do not suggest storing your airplane in an extremely hot environment (like the back of your car in direct sunlight) for any length of time. The extreme heat could cause the covering material to wrinkle and possibly damage the fragile components of the radio system, electronic speed control or flight battery.

SECTION 6: CHECKING THE WING FOR WARPS

The Odyssey EP ARF's wing is built extremely light. This is one reason the airplane flies so well. Because the wing is built so light, though, it is susceptible to warping when the covering is applied and shrunk tightly around its surface. The factory checks every wing for warps before they put them in the box, so it's unusual to receive a wing that's warped, but it's still a good idea to double-check yours. Follow the procedures below to check the wing for warps and to remove any warps that might be present. We don't suggest flying the airplane if the wing is warped because this condition will introduce bad flight characteristics in such a small airplane.

❑ Place one wing panel on a ***flat*** work table bottom-side down, making sure that the aileron torque rod hangs off the edge of your work table so it doesn't interfere with the test. Without pushing down on the wing panel, check to see if there is a gap between the work table and any of the four corners of the wing. If there is a gap under one or more corners, this means the wing has a slight warp in it.

❑ To remove the warp, secure the opposite end of the wing panel to your work table using some soft weights, or better yet, have someone else hold the end of the wing panel firmly.

❑ Using a heat gun or heat iron, heat the covering material on the top and bottom of the wing panel - a heat gun really works best for this. When the covering starts to wrinkle, gently twist the wing panel in the opposite direction of the warp, while holding the other end of the wing panel solid, and reshrink the covering tight to hold the wing panel in its new position.

❑ Recheck the wing panel for warps. When done properly the entire surface of the bottom of the wing panel should be flat against your work table.

❑ Repeat the previous procedures to check the opposite wing panel.

SECTION 7: AIRFRAME ASSEMBLY

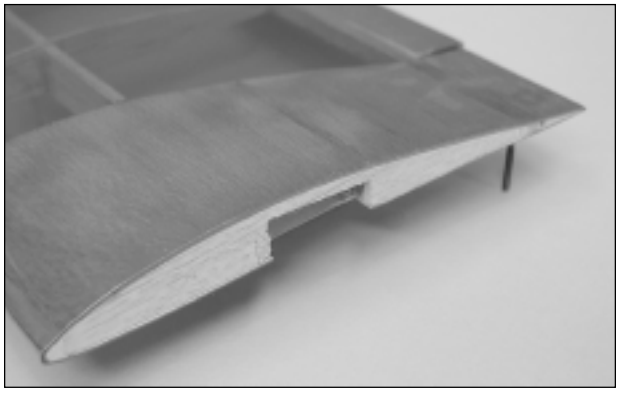
YOU'LL NEED THE FOLLOWING PARTS FROM THE KIT:

- ❑ (1) Fuselage w/Power System & Canopy
- ❑ (1) Right Wing Panel w/Aileron
- ❑ (1) Left Wing Panel w/Aileron
- ❑ (1) Horizontal Stabilizer w/Elevator
- ❑ (2) M3 x 12 Wood Screws
- ❑ (1) Main Gear Wire w/Wheels

YOU'LL NEED THE FOLLOWING TOOLS AND SUPPLIES:

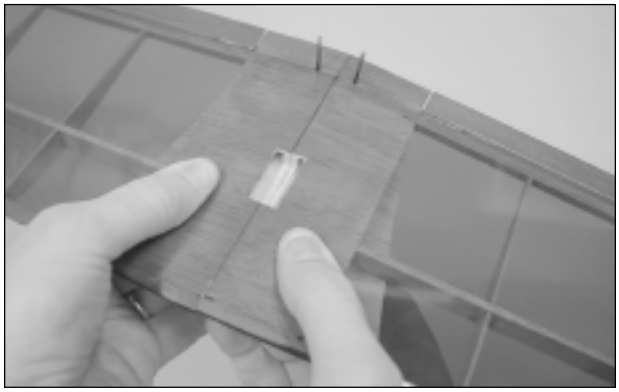
- ❑ Kwik Bond 5 Minute Epoxy
- ❑ # 1 Phillips Head Screwdriver
- ❑ Excel Modeling Knife
- ❑ 220 Grit Sandpaper w/Sanding Block
- ❑ Masking Tape
- ❑ Paper Towels
- ❑ Rubbing Alcohol
- ❑ NHP Epoxy Mixing Sticks
- ❑ NHP Epoxy Mixing Cups

Step 1: Joining the Wing Panels



❑ Using a modeling knife, cut away and remove the excess covering material that overlaps onto the root ribs of each wing panel, leaving about 1/16" overlapped so it does not pull away.

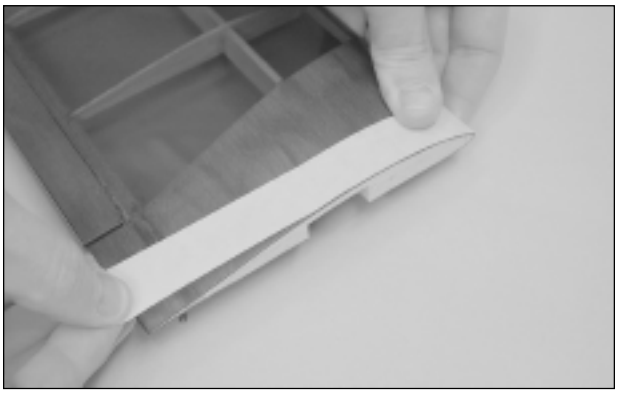
IMPORTANT It's very important to the integrity of the wing center section joint that you remove as much covering material from the root ribs as possible.



❑ Test-fit the two wing panels together. They should fit together with few or no gaps between the two, and the leading and trailing edges should line up evenly.

☞ If the wing panels don't fit together properly, carefully sand the root ends of each wing panel straight using 220 grit sandpaper with a sanding block, being careful not to change the dihedral angle.

IMPORTANT The root rib in each wing panel is angled to achieve the correct amount of dihedral when the wing panels are joined together. Do not alter the angle of the root ribs.



❑ Apply a strip of masking tape to the top and bottom edges of the root rib on each wing panel.

☞ The masking tape will prevent excess epoxy from getting onto the wing panels when you join them. This will make cleaning up any excess epoxy a lot easier.

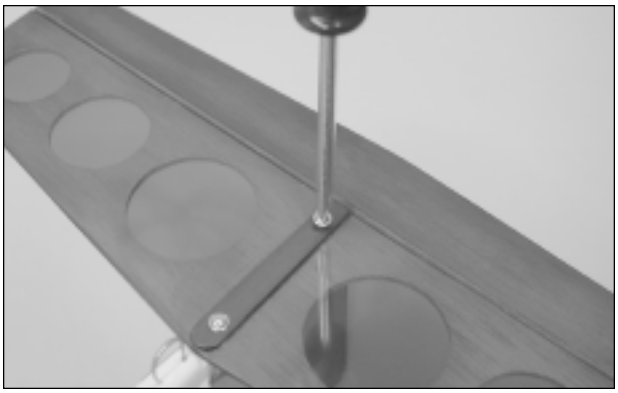
❑ Mix a generous amount of 5 minute epoxy and carefully apply a thin layer to the root ribs on **both** wing panels.

WARNING For maximum wing strength, make sure to cover the entire surface of both root ribs.

❑ Fit the wing panels back together and realign them. Remove any excess epoxy that squeezes out of the joint using a paper towel and rubbing alcohol, and hold the wing panels together firmly until the epoxy sets up - about 10 minutes.

❑ After the epoxy fully cures (about 1 hour), double-check that there are no gaps in the center section joint. If there are, mix up some more 5 minute epoxy and fill the gaps. After the epoxy completely cures, carefully remove the masking tape from the wing.

Step 2: Mounting the Horizontal Stabilizer

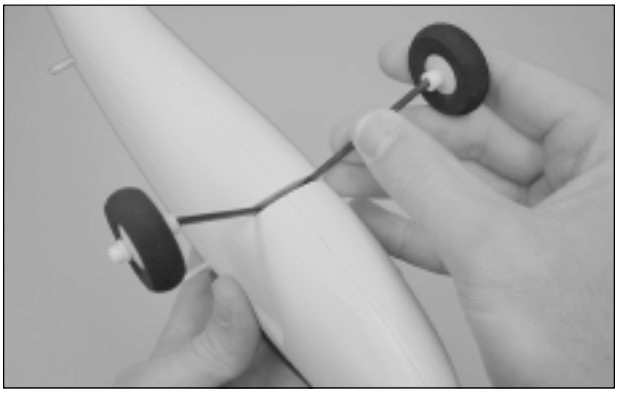


❑ Line up the predrilled holes in the stabilizer with the predrilled holes in the bottom of the fuselage and secure the stabilizer into place, using the two M3 x 12 wood screws provided.

☞ Be careful not to overtighten the screws or you might crush the stabilizer. The screws should be tightened snugly.

IMPORTANT When mounting the stabilizer, make sure that the preinstalled doubler is toward the bottom of the fuselage, as shown.

Step 3: Installing the Main Gear Wire



❑ Install the main gear wire by simply sliding the wire completely up into the slot in the bottom of the fuselage, as shown.

IMPORTANT It is not necessary to glue the main gear wire into place. It is a friction fit. You could glue it into place if you want, but if it's damaged during a hard landing it is much easier to repair or replace it if it's not glued in.

SECTION 8: CONTROL SYSTEMS INSTALLATION

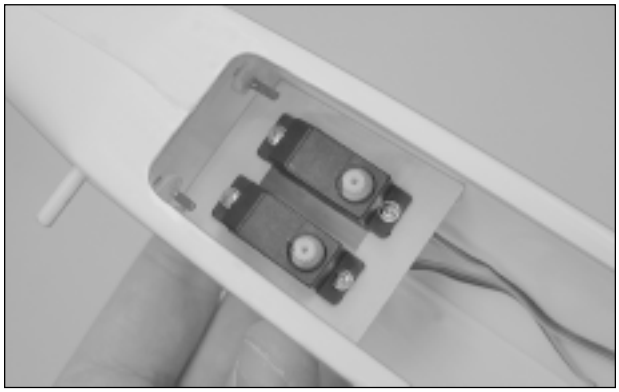
YOU'LL NEED THE FOLLOWING PARTS FROM THE KIT:

- ❑ (1) Plywood Aileron Servo Tray
- ❑ (2) 18" Pushrod Wires
- ❑ (2) 4" Pushrod Wires
- ❑ (2) Nylon Control Horns
- ❑ (2) Nylon Adjustable Control Horns
- ❑ (4) Nylon Pushrod Snap-Links

YOU'LL NEED THE FOLLOWING TOOLS AND SUPPLIES:

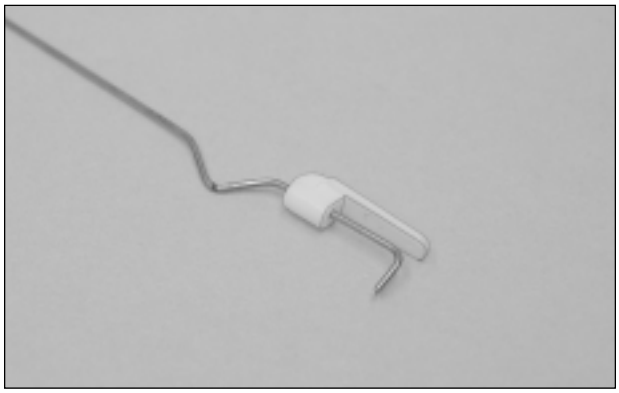
- ❑ Kwik Bond 5 Minute Epoxy
- ❑ Kwik Bond Thick C/A
- ❑ # 0 Phillips Head Screwdriver
- ❑ Magnum Z-Bend Pliers
- ❑ Wire Cutters
- ❑ Needle Nose Pliers
- ❑ Excel Modeling Knife
- ❑ Electric or Hand Drill
- ❑ 5/64" Drill Bit
- ❑ Ruler
- ❑ Pencil
- ❑ Masking Tape
- ❑ Paper Towels
- ❑ Rubbing Alcohol
- ❑ NHP Epoxy Mixing Sticks
- ❑ NHP Epoxy Mixing Cups

Step 1: Installing the Elevator Pushrod Assembly



❑ Carefully install your elevator and rudder servos into the servo tray, making sure that the servo output shafts are toward the front of the fuselage, as shown.

IMPORTANT The holes in the servo tray are precut to fit most micro servos. Depending on the particular servo you're using, you may need to modify the size of the holes slightly.

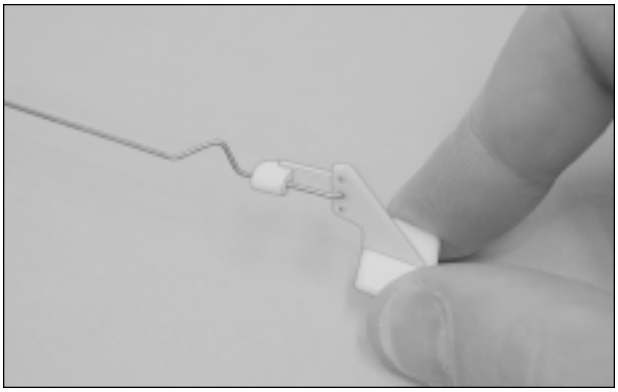


❑ Slide one nylon pushrod snap-link onto one 18" long pushrod wire, then make a short L-Bend in the very end of the wire, using needle nose pliers.

❑ Using a pair of needle nose pliers, carefully bend a "V" shape into the wire, as shown. The middle of the "V" should be 7/8" in front of the L-Bend and the "V" shape should be toward the L-Bend, as shown.

IMPORTANT Make sure that when you bend the "V" shape into the wire that the snap-link is between the L-Bend and the "V" shape, as shown.

IMPORTANT The "V" shaped bend is necessary to allow center-trim adjustments to the pushrod wire. Do not omit this procedure or you won't be able to center the control surfaces.

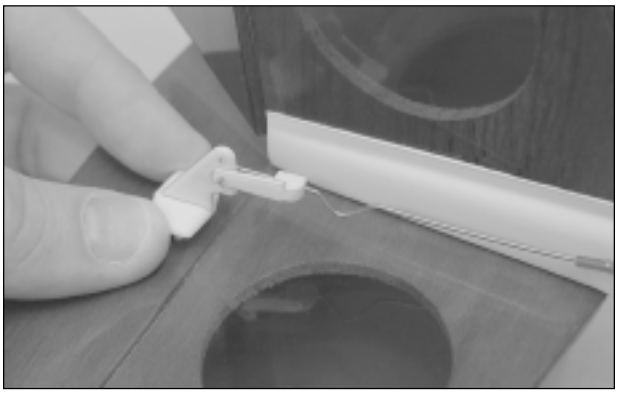


❑ Insert the L-Bend into the middle hole in one nylon control horn, so that the longer portion of the pushrod wire is toward the left side of the control horn, as shown.

❑ Hook the snap-link over the end of the wire to secure it to the control horn.

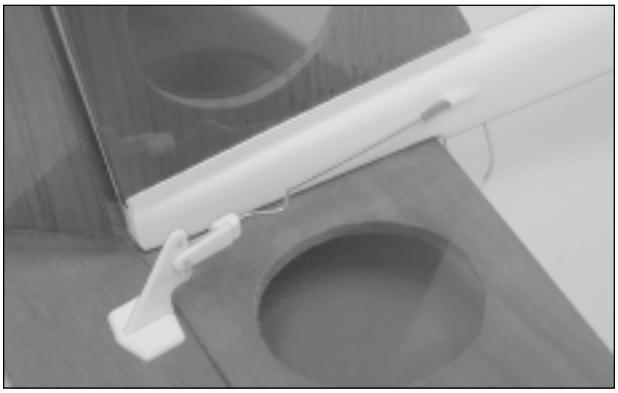
☞ Positioning the longer portion of the wire on the left side of the control horn will prevent the pushrod from binding when it is installed.

❑ Carefully slide the plain end of the pushrod wire (with the control horn still attached) into the nylon pushrod housing in the **right side** of the fuselage (looking from the back of the airplane).



❑ Carefully position the control horn so that the molded pushrod attachment holes are lined up over the elevator hinge line, and angle the control horn toward the fuselage so it is lined up with the pushrod wire. So the pushrod doesn't bind, the center of the control horn should be approximately 5/8" out from the side of the fuselage, at the hinge line.

❑ When satisfied with the alignment, firmly push the control horn down to make an impression of the control horn mounting studs onto the elevator.



❑ Using a 5/64" diameter drill bit, drill two holes through the elevator at the two marks left by the control horn.

❑ With the control horn attached to the pushrod wire, firmly push the control horn completely down into place.

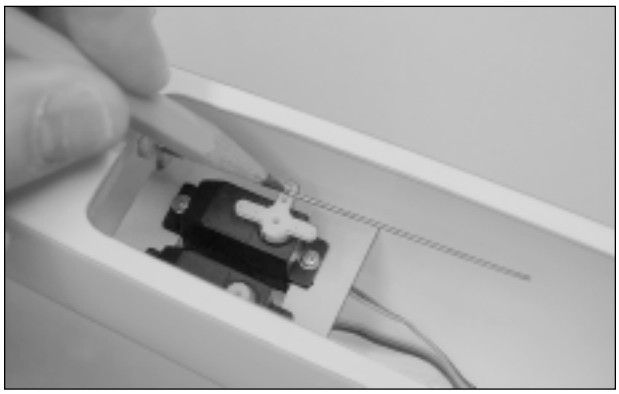
❑ Remove the control horn and use a modeling knife to carefully cut away and remove the covering material from the top of the elevator, where the control horn will be glued into place.

❑ With the control horn attached to the pushrod wire, glue the control horn to the elevator using a small dab of 5 minute epoxy. Remove any excess epoxy using a paper towel and rubbing alcohol, and allow the epoxy to set up completely before proceeding.

IMPORTANT Do not omit the procedures above. The control horn **must** be glued into place or it will come loose during flight. It's also important to remove the covering material from the gluing surfaces so that the epoxy will stick.

❑ Use a couple of pieces of masking tape, taped between the horizontal stabilizer and the elevator, to hold the elevator centered.

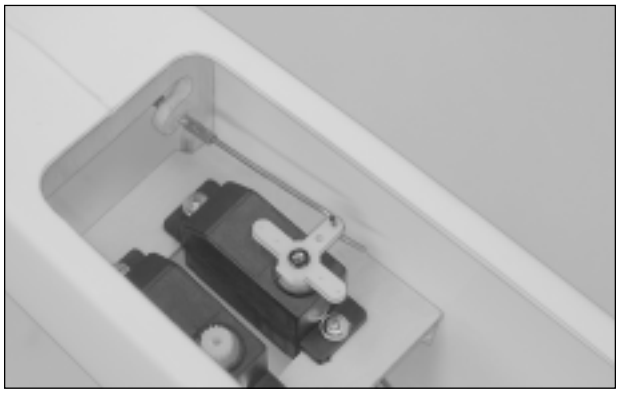
❑ Plug the elevator servo into the receiver, then plug the ESC into the receiver and the flight battery into the ESC . Turn on the radio system and center the servo using the trim lever on the transmitter.



❑ Place a small "4-point" servo horn onto the elevator servo, making sure that the servo horn is centered and points toward the fuselage side.

☞ You might have to cut off the excess arms from the servo horn so that they don't interfere with the other servo.

❑ With both the servo horn and the elevator centered, use a pencil to draw a mark on the pushrod wire where it crosses the **second hole** out from the center of the servo horn.



❑ Using Z-Bend Pliers, make a Z-bend in the pushrod wire at the mark you drew, then use wire cutters to cut away the excess wire.

☞ To make it easier to make the Z-Bend, remove the pushrod from the control horn and pull the pushrod as far forward as possible. This will give you more room to work.

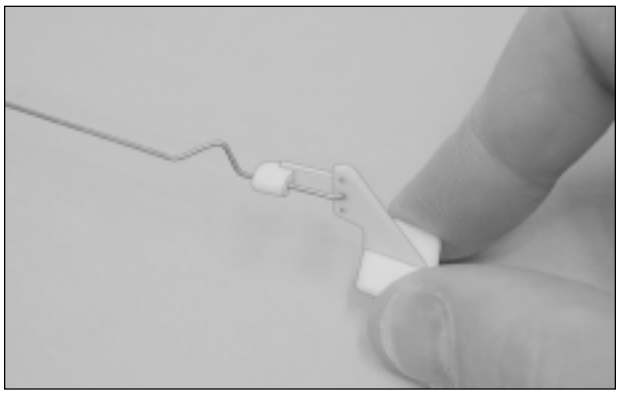
❑ Connect the servo arm to the Z-Bend and attach the servo horn to the servo output shaft, making sure that the servo horn is centered.

❑ Install and tighten the servo horn retaining screw, provided with your servo, to secure the servo horn into place.

❑ Remove the masking tape from the elevator and double-check that the servo horn and the elevator are still centered. If the elevator is not centered, use a pair of pliers to carefully open or close the "V" in the pushrod wire. Doing this will effectively lengthen or shorten the pushrod wire, centering the elevator.

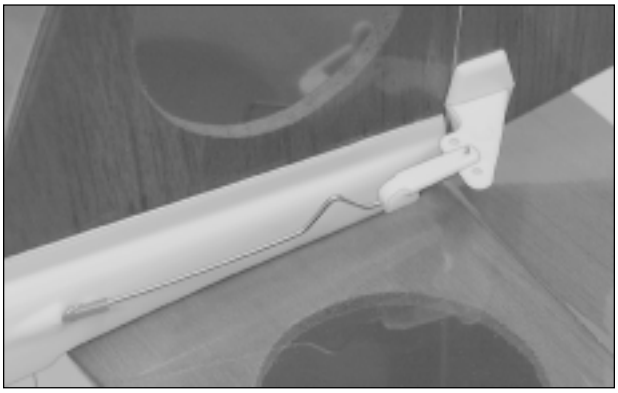
Step 2: Installing the Rudder Pushrod Assembly

IMPORTANT The rudder pushrod assembly is installed in much the same way as the elevator pushrod assembly. Control horn installation is the same, servo horn installation is the same, etc. There are a couple of minor differences, but those are pointed out for you in this step.



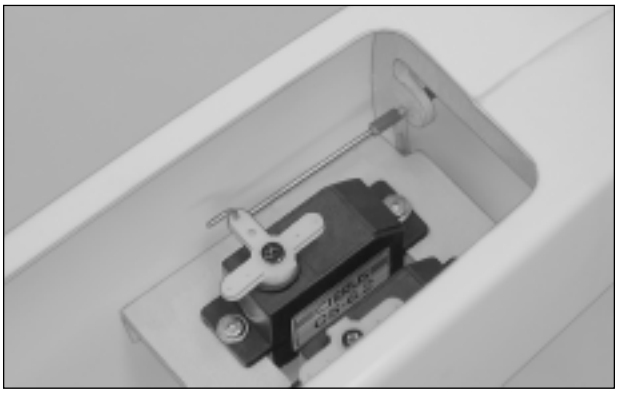
❑ Bend the remaining 18" long pushrod wire exactly the same way you bent the elevator pushrod wire and install the wire into the middle hole in the remaining control horn.

❑ Carefully slide the plain end of the pushrod wire (with the control horn still attached) into the nylon pushrod housing in the **left side** of the fuselage (looking from the back of the airplane).



❑ Install the control horn to the left side of the rudder, making sure that the pushrod attachment holes are positioned over the rudder hinge line and that the control horn is lined up with the pushrod wire. The centerline of the control horn should be approximately 3/8" up from the bottom of the rudder, at the hinge line.

IMPORTANT Remember to glue the control horn into place so that it doesn't come loose during flight.

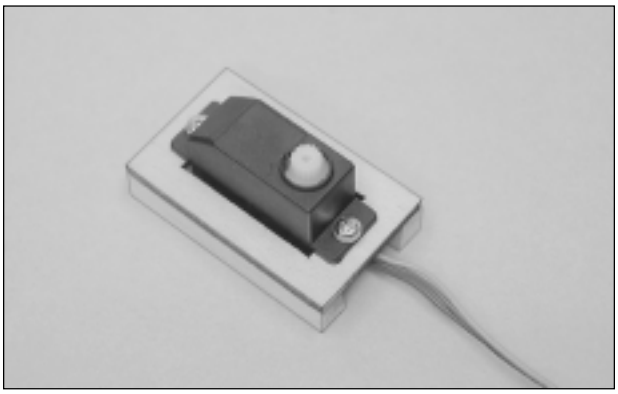


❑ Center the rudder and the rudder servo horn, then mark and make a Z-Bend in the pushrod wire.

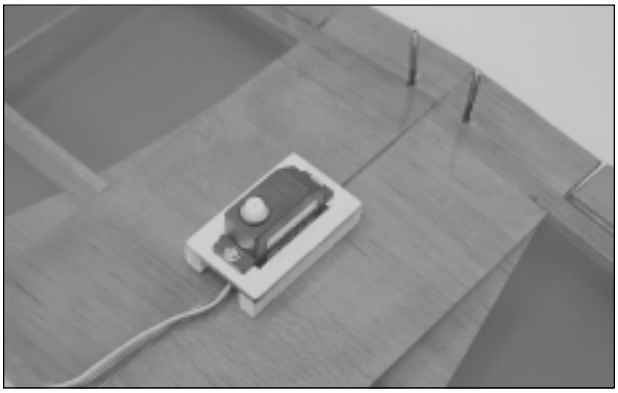
☞ Remember to remove the pushrod wire from the control horn and pull the pushrod wire forward so that it's easier to make the Z-Bend.

❑ Attach the servo horn to the pushrod, then place the servo horn onto the servo, securing it into place using the retaining screw provided with your servo mounting hardware.

Step 3: Installing the Aileron Pushrod Assemblies



❑ Carefully install your aileron servo into the aileron servo tray, as shown. Again, depending on the size of your servo, you may need to modify the size of the hole to fit your servo.

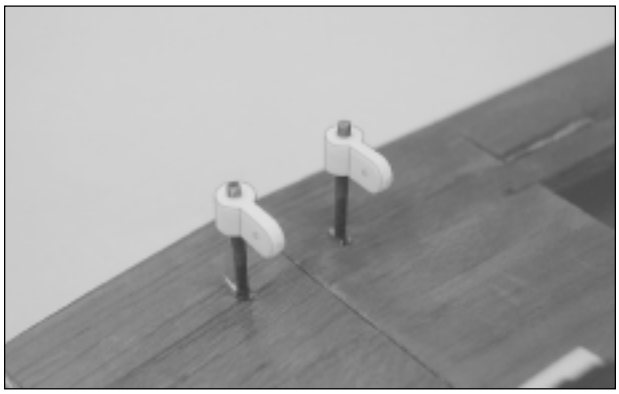


❑ Test-fit the servo tray to the wing. When positioned properly, the base of your servo should be centered within the cutout in the wing, and the mounting rails on the bottom of the servo tray should fit flush against the surface of the wing. The servo output shaft should be toward the leading edge of the wing, too.

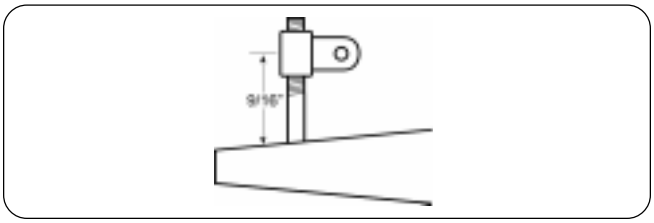
IMPORTANT Depending on the depth of your servo, the servo may not sit in the cutout. This is okay. Just make sure that the servo is centered over the cutout.

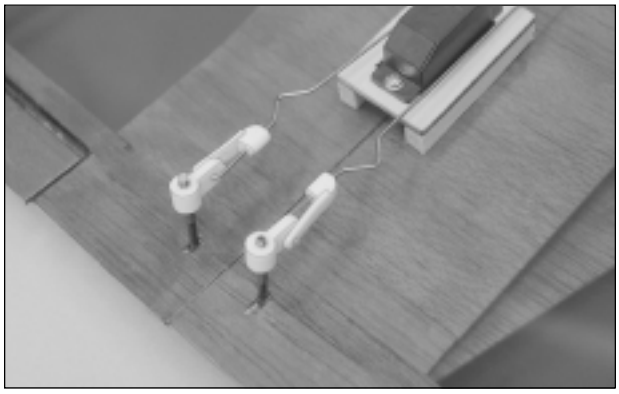
❑ When satisfied with the fit and alignment, cut away and remove the covering material from the bottom of the wing where the servo tray assembly will be glued into place.

❑ Glue the servo tray assembly into place using a generous amount of thick C/A and hold the servo tray in place until the C/A fully cures.



❑ Thread one nylon adjustable control horn onto each aileron torque rod. When threaded into their final positions, the center of the control horns should be 9/16" above the surface of the wing.



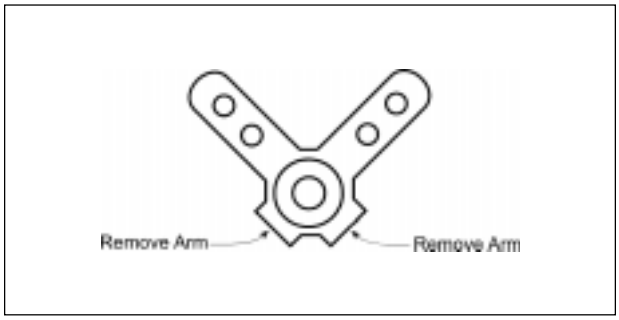


❑ Carefully bend the two 4" long pushrod wires exactly the same way as you bent the elevator and rudder pushrod wires, and connect them to the adjustable control horns, as shown.

☞ Notice that the pushrods are installed with the V-shaped bends toward the outside of the wing. This makes it easier to adjust the pushrods.

IMPORTANT NOTE ABOUT AILERON SETUP

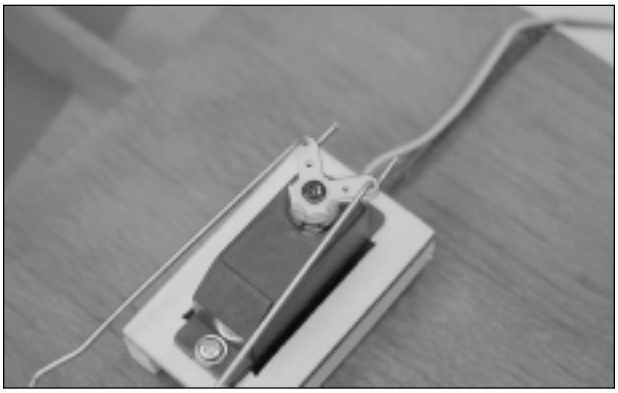
We are going to set up the aileron servo horn slightly different than what you might be used to. We are going to set it up so that the ailerons have differential. Normally, both ailerons move up and down the same amount. Differential ailerons means that one aileron moves up farther than the opposite aileron moves down. Using aileron differential helps eliminate the flight dynamic referred to as adverse yaw. Adverse yaw is when the airplane wants to yaw around the opposite axis as it rolls. For example, when the airplane rolls to the right, the airplane also wants to yaw to the left. Without aileron differential, this adverse yaw can result in an airplane that is difficult to control and/or does not turn properly. We can counteract this tendency with aileron differential. The following procedures will detail how to set up your Odyssey EP ARF with the correct amount of aileron differential.



❑ Using a modeling knife, cut away and remove the two lower arms from a "4-point" servo horn. Your servo horn should look like the drawing at left.

❑ Plug the aileron servo into the receiver. Plug the ESC into the receiver and the flight battery into the ESC. Turn on the radio system and center the servo using the trim lever on the transmitter.

❑ Use a couple of pieces of masking tape, taped between the wing and the ailerons, to hold the ailerons centered.



❑ Place the servo horn onto your servo, making sure it's centered and that the arms face toward the leading edge.

❑ Make a Z-Bend in each pushrod wire where they cross the second hole out from the center of each servo arm.

❑ Cut away the excess wire and install the servo horn to the pushrods and attach the servo horn to the servo, securing it into place using the retaining screw provided with your servo mounting hardware.

❑ Remove the masking tape from the ailerons and center them by using a pair of pliers to carefully open or close the "V" in each pushrod wire. Now when you move the ailerons up and down, the ailerons will move up farther than they move down. This is the aileron differential we wanted.

SECTION 9: FINAL ASSEMBLY

YOU'LL NEED THE FOLLOWING PARTS FROM THE KIT:

- ❑ (2) Rubber Bands
- ❑ (1) Velcro® Strip
- ❑ (1) Decal Set

YOU'LL NEED THE FOLLOWING TOOLS AND SUPPLIES:

- ❑ Excel Modeling Knife
- ❑ Scissors
- ❑ Electric or Hand Drill
- ❑ 5/64" Drill Bit

Step 1: Installing the Electronic Speed Control

The locations of the ESC and the receiver shown in the next few steps are only approximate. This is how our test airplanes were set up. The locations of your radio equipment could differ and should be dependent on what type of equipment you use and where you balance your airplane.

❑ Connect the motor plug on your ESC to the motor plug on the motor, making certain that the polarity is correct.

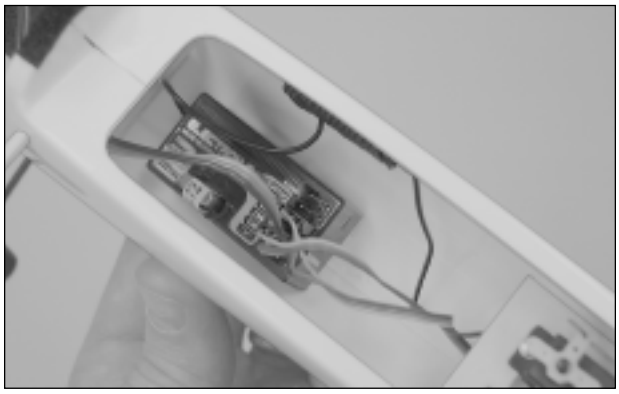
IMPORTANT If the motor plug on your ESC does not match the motor plug on the motor, you will need to remove the motor plug from the motor and replace it with one that is compatible with your ESC.

❑ Mount your ESC to the side of the fuselage, behind the motor, using a small piece of double-sided foam tape (not included).

☞ If you push the excess motor wiring into the front of the fuselage like we did, make sure that the wires don't interfere with the gear box assembly.

Step 2: Installing the Receiver

❑ Plug the elevator, rudder and ESC leads into their proper slots in your receiver.



❑ Mount the receiver to the fuselage floor, directly behind the battery mounting plate, using a piece of double-sided foam tape (not included).

❑ Drill a 5/64" diameter hole in the bottom of the fuselage, behind the receiver, for the antenna to exit. We wrapped our antenna around an antenna bobbin, secured that to the side of the fuselage, then ran the remainder of the antenna out through the hole and secured it to the bottom of the fuselage using a piece of clear tape.

IMPORTANT Do not cut the antenna shorter. Cutting the antenna shorter will result in greatly reduced receiver range and will likely result in loss of the airplane. Even if several feet of antenna hang out the back of the airplane, it won't affect the flight performance of the airplane.

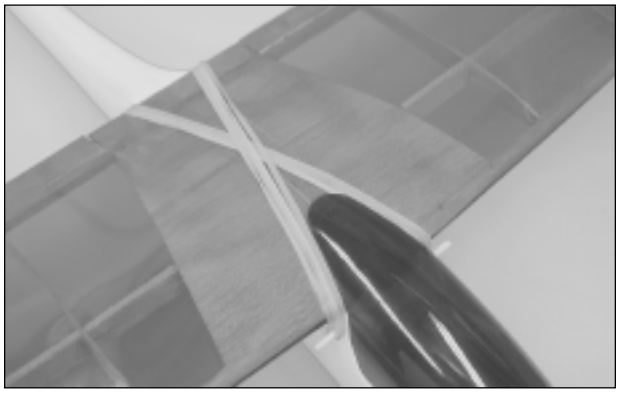
Step 3: Installing the Flight Battery

❑ Firmly stick the strip of Velcro® to your flight battery and secure the flight battery to the plywood mounting plate in the fuselage.

IMPORTANT A strip of Velcro® has been preinstalled on the mounting plate to hold the battery in place.

Step 4: Mounting the Wing

❑ Plug the aileron servo lead into the receiver and set the wing assembly onto the fuselage. To align it properly, the wing should be pushed forward completely and the centerline of the wing should be lined up with the centerline of the fuselage.



❑ When satisfied with the alignment, secure the wing into place using two rubber bands.

IMPORTANT To secure the wing tighter, we doubled the rubber bands over themselves. This prevents the wing from moving easily.

Step 5: Applying the Decals

❑ Working with one decal at a time, use a pair of scissors to carefully cut out the decal along its outer edges.

❑ Remove the protective backing from the decal and apply the decal to the airplane. (Use the box cover photos to position the decals.) Lightly rub the decal with a soft cloth to remove any trapped air from beneath it.

☞ If any air bubbles form in the decal you can "prick" the bubble with a straight pin to release the air.

❑ Repeat the procedures above to apply the remaining decals. Rub each decal down thoroughly to adhere it into place.

SECTION 10: BALANCING THE ODYSSEY EP ARF

YOU'LL NEED THE FOLLOWING TOOLS AND SUPPLIES:

❑ Ruler

❑ Masking Tape

IMPORTANT It is critical that your airplane be balanced correctly. Improper balance will cause your airplane to lose control and crash!

Center of Gravity Location:

1-9/16" to 1-13/16" back from the leading edge of the wing, measured at the fuselage sides.

WARNING This is the recommended C/G range. For test-flying we suggest you start with the C/G in the middle of the range (1-11/16"), then move it forward or back as you become familiar with the flying characteristics of the airplane. It is not recommended that the C/G be located any farther back than 1-13/16".

IMPORTANT As you move the C/G farther back, the airplane will become more responsive, especially in pitch. Do not start to move the C/G back until you are comfortable with the flight characteristics of the airplane.

☞ Balance the Odyssey EP ARF with the flight battery **installed.**

❑ Measure and place two small pieces of masking tape on the bottom of the wing, 1-11/16" back from the leading edge, measured at the fuselage sides.

❑ Place your fingers on the tape, and carefully lift the airplane. If the nose of the airplane falls, the airplane is nose heavy. To correct this, move the receiver and/or ESC back far enough to bring the airplane into balance. If the tail of the airplane falls, the airplane is tail heavy. To correct this, move the receiver and/or ESC far enough forward to bring the airplane into balance. When balanced correctly, the airplane should sit level or slightly nose down when you lift it up with your fingers at the C/G location.

☞ Once you have flown and become familiar with the flight characteristics of the airplane, the C/G can be moved forward or back up to 1/8" in each direction to change the flight performance. Moving the C/G back will cause the airplane to be more responsive, but less stable. Moving the C/G forward will cause the airplane to be less responsive, but more stable.

Do not fly the airplane beyond the recommended balance range or an uncontrollable crash could result!

SECTION 11: CONTROL THROWS & FLIGHT SETUP

We recommend setting up the Odyssey EP ARF using the control throws listed below. These control throws are suggested for the best overall flight performance. They are also ideal for test-flying the airplane because they will allow the airplane to fly smoother and make it easier to control.

CONTROL THROWS

Ailerons: **3/16" Up and 1/8" Down**
Elevator: **3/8" Up and Down**
Rudder: **5/8" Right and Left**

Important Tip: When measuring the control throws, measure from the widest point of the control surfaces.

FLIGHT SETUP

If you set up the control systems using the information we provided, the control throws listed above should be pretty close. If your control throws don't come out the same, you can adjust them several different ways. If the radio control system you're using features end point adjustments, you can simply electronically adjust the control throws. See your radio system's user manual for more information. If your radio control system does not feature end point adjustments, you can manually adjust the control throws using the tips below:

- Moving the pushrod wire toward the base of the control horn will increase the control throw. Moving the pushrod wire toward the tip of the control horn will decrease the control throw. This is also true of the ailerons that use adjustable control horns. If you want more control throw in the ailerons, thread the adjustable control horns down further toward the wing. If you want less control throw, thread the adjustable control horns away from the wing. It's important that both aileron control horns be even with each other so that both ailerons have the same amount of control throw.
- Moving the pushrod wire toward the tip of the servo arm will increase the control throw. Moving the pushrod wire toward the center of the servo arm will decrease the control throw.

So that the airplane will fly straight and level when you first fly it, it's important to make sure that all of the control surfaces are centered. With your radio control system's trim levers centered, check to make sure that the control surfaces are centered, too. If they aren't, you can center them by opening or closing the V-shaped bends in the pushrods.

If you've only flown a rudder/elevator airplane, you're used to turning the airplane using only the rudder. When you move the rudder right or left, the airplane begins to yaw to the right or left and the large amount of dihedral in the wing helps turn the airplane around its roll axis. If this is your first airplane that uses ailerons, we have provided some tips below of how to expect the airplane to behave:

- With an aileron/elevator/rudder airplane, the amount of dihedral in the wing is reduced and the ailerons are used to turn the airplane. When you use the ailerons to turn, the airplane will not yaw in the direction of your turn first because the ailerons directly affect the airplane's flight dynamics directly around the roll axis. This means that the airplane will be more responsive when turning and the airplane will tend to stay in the turn because of the reduced amount of dihedral, instead of naturally trying to right itself.
- Unlike a rudder/elevator airplane, when you turn an airplane that uses ailerons, the airplane will continue to roll as long as you hold the aileron control stick over. This means that you can actually roll the airplane completely around its roll axis. We suggest that until you get used to how the airplane behaves using ailerons you use small aileron inputs. This will help keep the airplane from rolling too quickly or farther than you are expecting.
- When you turn the airplane using ailerons, the airplane will have a tendency to want to lose altitude. To prevent this, you must hold a small amount of up elevator while the airplane is turning. As you fly the airplane more, you will get used to the amount of up elevator needed depending on the angle of the turn.

SECTION 12: PREFLIGHT CHECK & SAFETY

- Check the operation of the throttle. To do this, do the following:

A) Plug the flight battery into the ESC and turn on the radio system.

WARNING Do not turn the receiver on unless the transmitter is turned on first. Always turn the transmitter on first. Never allow hands or clothing to get in the way of the propeller when the radio is turned on. Sudden unwanted radio signals, or turning the radio on with the throttle stick set at full throttle, can turn the motor on unintentionally. Always make sure that the throttle control stick is set to idle before turning on the transmitter.

B) When the throttle control stick is at the idle position, the motor should be off. Moving the stick forward should turn on the motor. Gradually moving the stick to the full forward position should result in the motor running at full power.

☞ Some ESCs will give you more proportional control than others. Your ESC may also have a manual control adjustment screw that must be adjusted prior to using the ESC. (Refer to your ESC's operating guide for further information.)

- Cycle the flight battery three times. When NiMH or NiCD batteries are new they need to be used 2-3 times before they will produce their top voltage and duration. To cycle them, simply charge the battery and then run the motor (at low speed to prevent damaging it) until the motor stops. Allow the battery and motor to cool, then repeat this procedure two more times.
- Check the condition of the transmitter batteries. They should be fully charged.
- Check every bolt and every glue joint in the airplane to ensure that everything is tight and well-bonded.
- Double-check that all of the control horns are tight.
- Double-check the balance of the airplane. **Do this with the flight battery installed.**
- Check the control surfaces. They should all move in the correct direction and not bind.
- If your radio transmitter is equipped with dual rate switches, double-check that they are on the low-rate setting for your first few flights.
- Check to ensure that all of the control surfaces are moving the proper amount in both low and high rate settings.
- Check the receiver antenna. It should be fully extended and not coiled up inside the fuselage. The only exception to this is if the excess antenna is properly wound around an antenna bobbin.

The following are our general guidelines for your safety and the safety of others. Please read and understand these safety guidelines before going out to the flying field for the first time.

- Do not test-fly your model for the first time without first having it safety-checked by an experienced modeler.
- Do not fly your model higher than approximately 400 feet within 3 miles of an airport without having an observer with you. The observer should tell you about any full-size aircraft in your vicinity and you should always give the right-of-way to full-scale aircraft.
- When flying at a flying field with established rules, you should abide by those rules. You should not deliberately fly your model in a reckless and/or dangerous manner.
- While flying, you should not deliberately fly behind the flight line. If your model should inadvertently fly behind the flight line, you should change course immediately.
- You should complete a successful range check of your radio equipment prior to each new day of flying, or prior to the first flight of a new or repaired model.
- You should perform your initial turn after take- off away from the flightline and/or spectator area.
- You should not knowingly operate your R/C radio system within 3 miles of a preexisting model club flying field without a frequency sharing agreement with that club.

SECTION 13: FLYING THE ODYSSEY EP ARF

The Odyssey EP ARF can take off from the ground or be hand-launched. We recommend ground take-offs only from hard, smooth surfaces. Since the wheels are small and lightweight, the airplane won't roll through any but the shortest grass.

Taking Off from the Ground

With the airplane pointing into the wind, apply full power and feed in right rudder to keep the airplane tracking straight as it rolls down the runway. Once sufficient airspeed has been reached, which will happen pretty quickly, gently apply up elevator to lift the airplane off the ground. Climb out straight ahead in a shallow climb to build up speed. Do not make any steep turns or extreme climb angles right after take-off or you may stall the airplane.

Hand-Launching

Hand-Launching should always be done into the wind.

To hand-launch the airplane, gently grasp the fuselage between your thumb and forefingers at the C/G location. Hold the airplane above shoulder level and turn on the motor to full power. With the motor running at full power, gently toss the airplane straight ahead and level. Do not throw it up at an angle or throw it hard. Let the airplane fly straight and level to pick up airspeed, then climb to your desired altitude. Be careful not to climb too steeply after hand-launching or you could stall the airplane.

SECTION 14: GLOSSARY OF TERMS

Adverse Yaw: Adverse yaw is when the airplane wants to yaw around the opposite axis as it rolls. For example, when the airplane rolls to the right, the airplane also wants to yaw to the left.

Ailerons: The ailerons are the control surfaces on the wing that move up and down. These surfaces control the roll axis of the airplane.

Aileron Differential: Aileron differential means that one aileron moves up farther than the opposite aileron moves down. Using aileron differential helps eliminate the flight dynamic referred to as adverse yaw.

C/A Glue: An acronym for Cyanoacrylate. It dries very fast like "Super Glue." It comes in many different formulas for different uses.

Center of Gravity: Most commonly referred to as the C/G or balance point, it is the point at which the airplane is in complete balance in all three axes.

Control Horn: Part of the control system, the control horn is mounted to the control surface. It allows the pushrod to be connected to the control surface. Almost all control horns are adjustable to allow for more or less control surface movement.

Covering: Made out of vinyl or polyester. Covering has heat sensitive adhesive that, when heated, sticks to the wood frame of the airplane. The Odyssey EP ARF uses real iron-on transparent covering material.

Covering Iron: A small hand-held iron, usually Teflon® coated. It is used to heat and apply covering material.

Cycling: The act of fully charging and discharging the flight battery. Cycling the battery increases performance and duration.

Dihedral: The upward angle of each wing panel. Dihedral creates more stability which makes learning to fly much easier.

Elevator: The elevator is the control surface on the back of the airplane that moves up and down. This surface controls pitch.

Epoxy: A two-part glue containing a resin and a hardener. Epoxy is available in several drying times and is stronger than C/A glue. Epoxy is used in high stress areas such as joints of wing panels.

ESC: An acronym for Electronic Speed Control. See Motor Controller.

Hinges: Usually made out of plastic or nylon, the hinges connect the control surfaces to the stabilizers or wing. They pivot, allowing the control surface to move. Some lightweight airplanes like the Odyssey EP ARF use clear vinyl tape for the hinges.

Horizontal Stabilizer: Mounted in the rear of the airplane, the horizontal stabilizer works with the elevator to control pitch.

Motor Controller: Usually called an electronic speed control (ESC), the motor controller controls the speed of the motor. Motor controllers can also be simple on and off switches.

Peak Charger: A type of battery charger that uses a microprocessor to sense when the flight battery is fully charged. Once peak charged, the charger shuts off so that the battery does not overcharge.

Pushrods: They connect between the control surface and the servo, transferring the movement of the servo directly to the control surface.

Pushrod Housing: A tube that is usually nylon. The pushrod tube or wire runs through the housing.

Receiver: The part of the radio system that receives the signals from the transmitter.

Rudder: The rudder is the control surface on the back of the airplane that moves right and left. This causes the nose of the airplane to yaw right and left.

Servo: The part of the radio system that produces the movement necessary to move the control surfaces. The servo includes a small motor, gears and a circuit board.

Servo Reversing: An option on almost all new radios. Servo reversing allows you to change the direction a servo rotates by just flipping a switch on the transmitter.

Servo Tray: Usually made out of plywood, the servo tray is the mounting base for the servos.

Stall Speed: The speed at which air stops moving fast enough over the surface of a wing to keep the airplane flying.

Transmitter: The part of the radio system that you control. It transmits the control inputs to the receiver, which transfers that information to the servos.

Trim Lever: A sliding lever on the transmitter that allows you to make small adjustments to the control surfaces from the transmitter.

Vertical Stabilizer: Mounted on the rear of the airplane, it works with the rudder to turn the airplane. It also gives the airplane vertical stability.

Wing Saddle: The portion of the fuselage on which the wing is mounted.

Z-Bend: This is a special bend made in the pushrod wire. While it cannot improve your ability to make adjustments, the Z-Bend is the most secure way to attach the pushrod wire to the servo horn.

Cut Along Dotted Line

PRODUCT EVALUATION SHEET

Telling us what you like and don't like determines what model kits we make and how we make them. We would appreciate it if you would take a few minutes of your time to answer the following questions about this kit and your modeling interests. Simply fold this form on the dotted lines, seal with tape and mail it to us. *Do not use staples and make sure our address faces out*.

Global Hobby Distributors will not disclose the information it collects to outside parties. Global Hobby Distributors does not sell, trade, or rent your personal information to others. Your privacy is important to us.

1) Kit: **Wattage Odyssey EP ARF # 128395**

2) Where did you learn about this kit?
- ❑ Magazine Ads
- ❑ Hobby Shop
- ❑ Internet
- ❑ Friend
- ❑ Other

3) What influenced you the most to buy this kit?
- ❑ Magazine Ads
- ❑ Type of Model
- ❑ Recommendation
- ❑ Internet
- ❑ Price
- ❑ Box Art
- ❑ Other

4) Did you have any trouble understanding the written instructions? If yes, please explain.
- ❑ Yes
- ❑ No

5) Did you have any trouble understanding any of the photographs? If yes, please explain.
- ❑ Yes
- ❑ No

6) Were any of the kit parts:
- ❑ Damaged
- ❑ Missing
- ❑ Wrong Size
- ❑ Wrong Shape

If you checked any of the boxes above, did you contact our Customer Service Department to resolve the problem?
- ❑ Yes
- ❑ No

7) Was any of the assembly difficult for you? If yes, please explain.
- ❑ Yes
- ❑ No

8) What did you like most about this kit?
- ❑ Assembly Manual
- ❑ Hardware Supplied
- ❑ Other
- ❑ Parts Fit
- ❑ Price

9) What did you like least about this kit?
- ❑ Assembly Manual
- ❑ Hardware Supplied
- ❑ Other
- ❑ Parts Fit
- ❑ Price

10) Are you satisfied with the finished model? If no, please explain.
- ❑ Yes
- ❑ No

11) How does this kit compare to similar kits by other manufacturers?
- ❑ Better
- ❑ As Good

What is Your Age Group:
❑ 10 & Under ❑ 11 - 20 ❑ 21 - 30 ❑ 31 - 40 ❑ 41 - 50 ❑ 51 - 60 ❑ 61 - 70 ❑ 71 +

How Many Years Have You Been in the Hobby?
❑ Less than 1 ❑ 2 - 4 ❑ 5 - 7 ❑ 8 - 10 ❑ 11 - 15 ❑ 16 - 20 ❑ 20 or More

How Many Models Have You Purchased In the Last Year?
❑ 0 - 1 ❑ 2 - 4 ❑ 5 - 7 ❑ 8 - 10 ❑ 10 or More

Please List any Other Modeling Interests or any Additional Information about This Product: _____

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