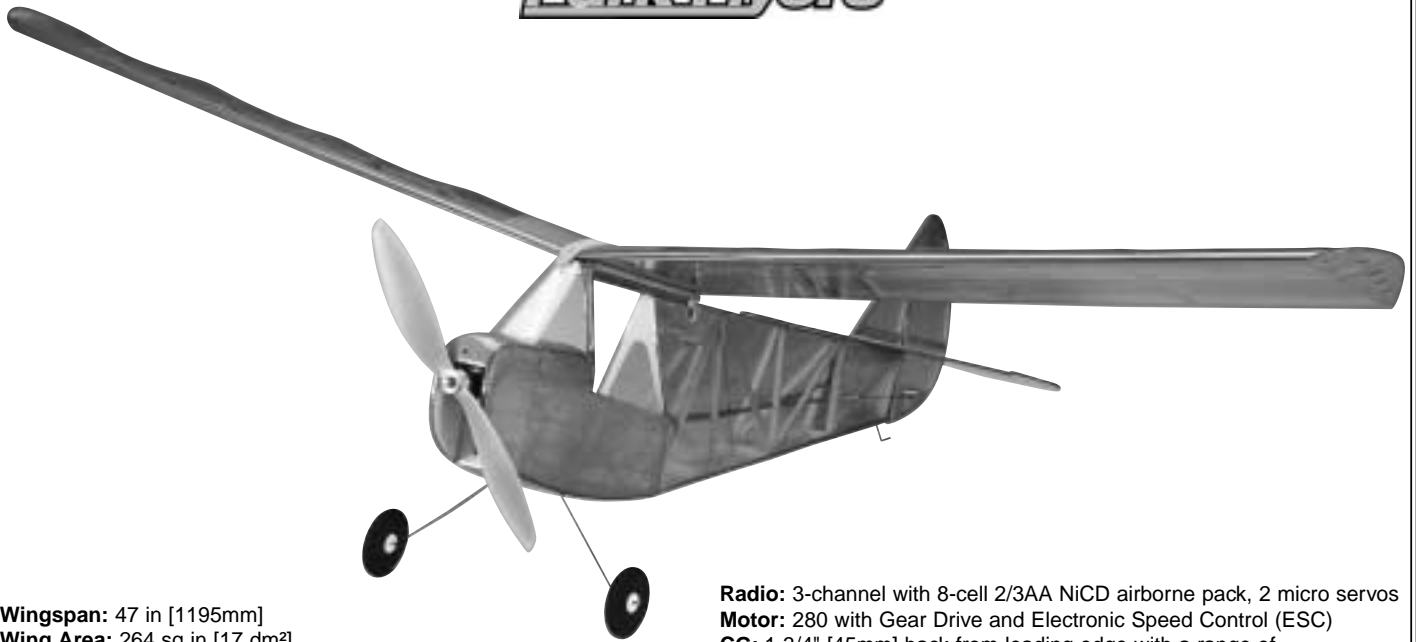


HEADWIND "B"

ARF

INSTRUCTION MANUAL

Park Flyers



Wingspan: 47 in [1195mm]
Wing Area: 264 sq in [17 dm²]
Weight: .75 lbs [340 g]
Wing Loading: 7 oz/sq ft [22 g/dm²]
Length: 26 in [660mm]

Radio: 3-channel with 8-cell 2/3AA NiCD airborne pack, 2 micro servos
Motor: 280 with Gear Drive and Electronic Speed Control (ESC)
CG: 1-3/4" [45mm] back from leading edge with a range of
1-1/2" [38mm] to 2" [51mm]
Throws: Elevator 1/2" up 1/2" down
Rudder 1" up 1" down

WARRANTY

Great Planes® Model Manufacturing Co. guarantees this kit to be free from defects in both material and workmanship at the date of purchase. This warranty does not cover any component parts damaged by use or modification. **In no case shall Great Planes' liability exceed the original cost of the purchased kit.** Further, Great Planes reserves the right to change or modify this warranty without notice.

In that Great Planes has no control over the final assembly or material used for final assembly, no liability shall be assumed nor accepted for any damage resulting from the use by the user of the final user-assembled product. By the act of using the user-assembled product, the user accepts all resulting liability.

If the buyer is not prepared to accept the liability associated with the use of this product, the buyer is advised to return this kit immediately in new and unused condition to the place of purchase.

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



Champaign, Illinois
(217) 398-8970, Ext 5
airsupport@greatplanes.com

TABLE OF CONTENTS

INTRODUCTION	2
SAFETY PRECAUTIONS	2
ADDITIONAL ITEMS REQUIRED	3
Radio Equipment.....	3
Speed Control	3
Motor System	3
Battery Recommendations	3
Chargers.....	3
Adhesives and Building Supplies	4
Covering Accessories.....	4
Optional Supplies and Tools.....	4
IMPORTANT BUILDING NOTES.....	4
KIT INSPECTION.....	5
ORDERING REPLACEMENT PARTS.....	5
BUILDING INSTRUCTIONS	6
Assemble the Wing	6
Assemble the Tail	6
Install the Canopy and Main Gear	9
Install the Servos and Pushrods	9
Install the Motor.....	10
Complete Final Radio Installation	11
GET THE MODEL READY TO FLY.....	11
Check the Control Directions	11
Set the Control Throws.....	11
Balance the Model (C.G.).....	12
Balance the Model Laterally	12
PREFLIGHT	12
Identify Your Model	12
Charge the Batteries	12
Balance Propellers	13
Ground Check	13
Range Check.....	13
MOTOR SAFETY PRECAUTIONS.....	13
AMA SAFETY CODE	13
CHECK LIST.....	14
FLYING.....	14
Takeoff	15
Flight.....	15
Landing.....	15

INTRODUCTION

The Headwind B is a true park flyer trainer, able to fly in small areas (but not intended for indoor settings). It is a great first airplane, with 4-5 minute flight times on the stock motor package recommended, and climbs mildly with power for safety. However, please note that no R/C model is intended to be flown by a brand-new beginner without some assistance from an experienced pilot.

For the latest technical updates or manual corrections for the Headwind B, visit the web site listed below and select the Great Planes Headwind B. If there is new technical information or changes to this kit, a "tech notice" box will appear in the upper left corner of the page.

<http://www.greatplanes.com/airplanes/index.html>

PROTECT YOUR MODEL, YOURSELF & OTHERS...FOLLOW THESE IMPORTANT SAFETY PRECAUTIONS

1. Your Headwind B 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 Headwind B, 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, 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 and a correctly sized motor and components (fuel tank, wheels, etc.) throughout the building process.
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 already an experienced R/C pilot, you should fly the model only with the help of a competent, experienced R/C pilot.

We, as the kit manufacturer, provide you with a top quality 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 that is straight and true.

If you have not flown R/C 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.

In addition to joining an R/C club, we strongly recommend you join the AMA (Academy of Model Aeronautics). AMA membership is required to fly at AMA sanctioned clubs. There

are over 2,500 AMA chartered clubs across the country. Among other benefits, the AMA provides insurance to its members who fly at sanctioned sites and events. Additionally, training programs and instructors are available at AMA club sites to help you get started the right way. Contact the AMA at the address or toll-free phone number below:



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: <http://www.modelaircraft.org>

ADDITIONAL ITEMS REQUIRED

This is the list of hardware and accessories required to finish the Headwind B. Order numbers are provided in parentheses.

Radio Equipment

The Headwind B requires a micro receiver and two micro servos. Futaba® S3103 (FUTM0037) or Hobbico® CS-5 (HCAM0090) micro servos are suitable.

Speed Control

An electronic speed control with BEC (Battery Eliminator Circuitry) is required. The BEC allows both the motor and the radio system to be powered by the same battery (thus eliminating an additional battery typically required to power the radio). The Great Planes ElectriFly™ C-5 Nano™ High Frequency Electronic Speed Control (GPMM2000) is recommended for the Headwind B. If you purchase the complete motor and gear drive system, the speed control is included (refer to the “**Motor System**” section that follows).

Motor System

The Headwind B is designed to use the Great Planes ElectriFly T-280GD ESC motor system and gear drive for electric flight (GPMG0430). This system includes a T-280 Ferrite Motor, S-280 4.1:1 ratio gearbox, 3mm prop adapter, APC 10 x 4.7 propeller and the ElectriFly C-5 Nano High Frequency Electronic Speed Control w/BEC. The same components are also available without the speed control by ordering number GPMG0445.

Battery Recommendations

There are mainly two kinds of battery packs used for electric R/C models; nickel-metal hydride (NiMh) packs and nickel-

cadmium (NiCd, pronounced ny-cad) packs. NiMh batteries are recommended for the Headwind B because they provide nearly twice the capacity of a NiCd for their size. However, it should be noted that nickel-metal hydrides cannot be charged as fast as NiCds.

Each individual cell that makes up a battery is 1.2 volts. Simply stated, a volt is the amount of *power* a battery pack can deliver (a 6-cell battery pack is 7.2 volts). Batteries are also rated by their capacity in mAh (milli-Amp-hours), or how much energy they store. A 550 mAh battery can supply 1 *Ampere* for .55 hours (about 30 minutes). A 1200 mAh battery pack is about twice the size of a 550 mAh battery pack.

These are the battery packs recommended for the Headwind B:

- Panasonic 6-cell 550 mAh NiMh pack (GPMP0100) for beginners due to its light weight.
- Panasonic 7-cell 550 mAh NiMh pack (GPMP0101) for advanced pilots who are capable of flying in slightly windier conditions.
- Panasonic 7-cell 1200 mAh NiMh (GPMP0300) for advanced pilots requiring the longest duration (not recommended for beginners due to the fact that it is heavier than the 550 mAh batteries).

Note: If flying the Headwind B at altitudes of 3,000 feet above sea level or higher, beginners should select the 7-cell 550 mAh battery pack, as the 6-cell pack may not provide adequate power.

Chargers

The best type of charger to use is a *peak* charger, because it charges the batteries until they are fully charged, then automatically switches to a trickle charge mode. The Great Planes ElectriFly Peak Charger (GPMM3000) is suitable for nickel-metal hydride batteries, NiCds and transmitter battery packs.

If you have another type of charger that is not a peak charger, you will have to calculate the length of time it takes to charge the batteries yourself, then turn the charger off when the batteries are fully charged. Overcharging the batteries may damage them. Before you can calculate the time it takes to charge a battery pack, you first have to know the charge rate you are going to use. Nickel-metal hydrides must be charged at a rate of no more than 1/10 of their capacity. For the 550 mAh batteries recommended for the Headwind B this would be a charge rate of approximately 50 mAh. Divide the capacity of the battery pack by the charge rate to calculate the charge time. A discharged 550 mAh battery pack charged at 50 mAh will take 11 hours to charge.

Charge Rate/Time Recommendations:

- Charge the 6-cell 550 mAh battery pack at 50 mAh for 11 hours.
- Charge the 7-cell 550 mAh battery pack at 50 mAh for 11 hours.
- Charge the 7-cell 1200 mAh battery pack at 100 mAh for 12 hours.

IMPORTANT: Monitor the temperature of the battery frequently. If the battery becomes warm, disconnect it from the charger.

A Hobbico R/C Multi-Charger (HCAP0100) is suitable for charging the battery packs used in the Park Flyers.

Note: The period required to charge the batteries in the examples above is for discharged batteries. If the battery you are going to charge is not discharged (and you are not using a peak-charger), connect it to the motor on your model. Run the motor until the propeller is turning slowly, thus discharging the battery.

Adhesives and Building Supplies

In addition to common household tools and hobby tools, this is the "short list" of the most important items required to build the Headwind B. Great Planes Pro™ CA and Epoxy glue are recommended.

- Hook & Loop Velcro® (GPMQ4480)
- Hobby knife (HCAR0105)
- #11 blades (HCAR0211)
- Small T-pins (HCAR5100)
- Top Flite® Panel Line Pen (TOPQ2510)
- Electric drill and 1/16" [1.6mm] drill bit
- Small Phillips and flat blade screwdrivers
- Pliers with wire cutter (HCAR0630)
- 1/2 oz. Thin Pro™ CA (GPMR6001)
- 1/2 oz. Medium Pro CA+ (GPMR6007)
- 6-Minute Epoxy (GPMR6045)

Covering Accessories

- Top Flite MonoKote® sealing iron (TOPR2100)
- Top Flite MonoKote trim seal iron (TOPR2200)

Optional Supplies and Tools

Here is a list of optional tools mentioned in the manual that will help you build the Headwind B.

- Great Planes CG Machine™ (GPMR2400)
- Straightedge with scale (HCAR0475)
- Masking Tape (TOPR8018)
- CA accelerator (GPMR6034)
- R/C-56 Canopy Glue (JOZR5007)
- Epoxy Brushes (GPMR8060)
- Mixing Sticks (GPMR8055)
- Denatured Alcohol (for epoxy clean up)
- Non-elastic monofilament or Kevlar fishing line (for stab alignment)
- Builders Triangle Set (HCAR0480) (for fin alignment)

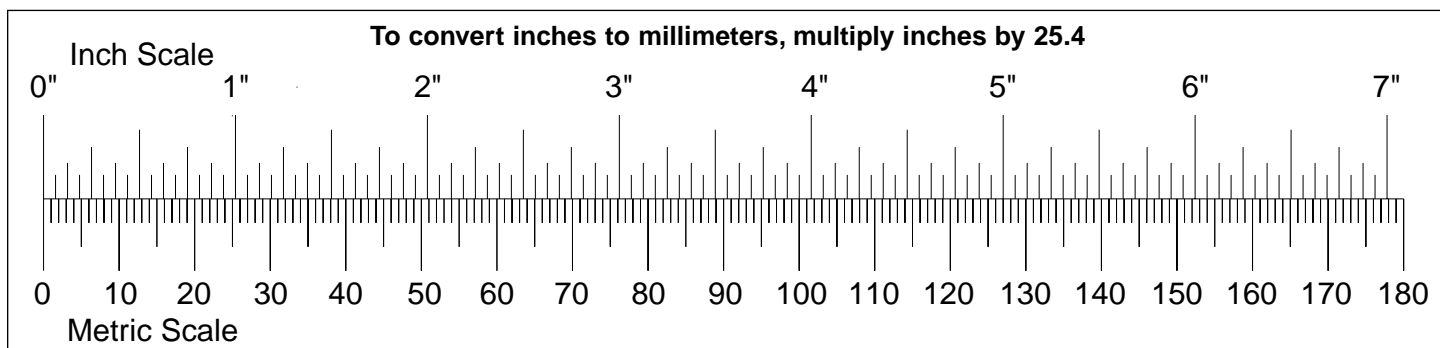
IMPORTANT BUILDING NOTES

- When you see the term **test fit** in the instructions, it means that you should first position the part on the assembly **without using any glue**, then slightly modify or **custom fit** the part as necessary for the best fit.

- Whenever the term **glue** is written you should rely upon your experience to decide what type of glue to use. When a specific type of adhesive works best for that step, the instructions will make a recommendation.

- **Photos** and **sketches** are placed before the step they refer to. Frequently you can study photos in following steps to get another view of the same parts.

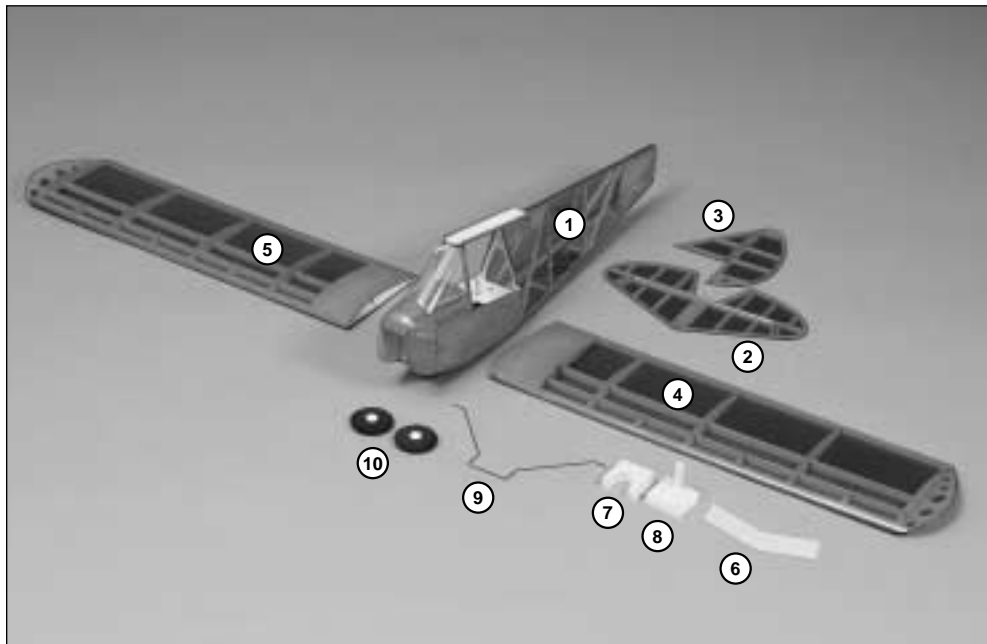
- The Headwind B is factory-covered with Top Flite MonoKote film. Should repairs ever be required, MonoKote can be patched with additional MonoKote purchased separately. MonoKote is packaged in six-foot rolls, but some hobby shops also sell it by the foot. If only a small piece of MonoKote is needed for a minor patch, perhaps a fellow modeler would give you some. MonoKote is applied with a model airplane covering iron, but in an emergency a regular iron could be used. A roll of MonoKote includes full instructions for application. The Headwind B is covered in Transparent Green Monokote (TOPQ0306).



KIT INSPECTION

Before starting to build, use the **Kit Contents** list to 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 **Great Planes Product Support**. When reporting defective or missing parts, use the part names exactly as they are written in the Kit Contents list on this page.

3002 N. Apollo Drive, Suite 1
Champaign, IL 61822
Telephone: (217) 398-8970
Fax: (217) 398-7721
E-mail: airsupport@greatplanes.com



- Kit Contents (Photographed)**
- 1 Fuselage (w/windshield and outer pushrods)
 - 2 Horizontal tail
 - 3 Vertical tail
 - 4 Left wing
 - 5 Right wing
 - 6 Wing joiner
 - 7 GP motor mount
 - 8 GWS motor mount
 - 9 Main gear wire
 - 10 Main wheels

- Kit Contents (Not Photographed)**
- (2) Control horns
 - (2) Clevises
 - (4) Wheel retainers
 - (1) Tail skid wire
 - (1) Balsa main gear block
 - (1) Plastic wing TE support
 - (1) Bag small rubber bands (battery)
 - (1) Bag large rubber bands (wing)
 - (2) Pushrod wires

ORDERING REPLACEMENT PARTS

To order replacement parts for the Great Planes Headwind B, use the order numbers in the **Replacement Parts List** that follows. Replacement parts are available only as listed. Not all parts are available separately (an aileron cannot be purchased separately, but is only available with the wing kit). Replacement parts are not available from Product Support, but can be purchased from hobby shops or mail order/Internet order firms. Hardware items (screws, nuts, bolts) are also available from these outlets. If you need assistance locating a dealer to purchase parts, visit www.greatplanes.com and click on "Where to Buy." If this kit is missing parts, contact **Great Planes Product Support**.

Replacement Parts List

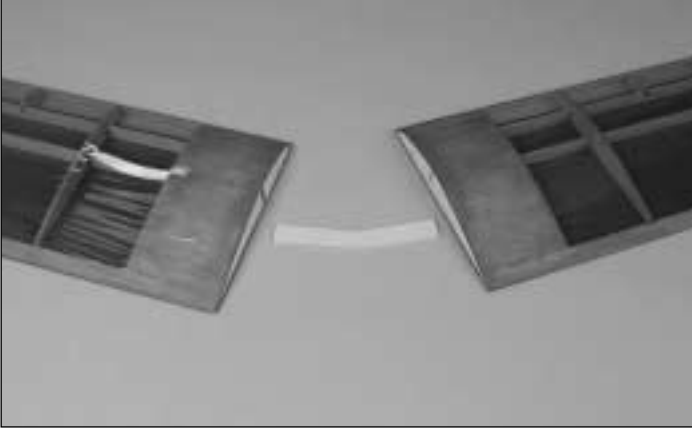
<u>Order Number</u>	<u>Description</u>	<u>How to Purchase</u>
	Missing pieces	Contact Product Support
	Instruction manual.....	Contact Product Support
	Full-size plans	Not available
	Kit parts listed below.....	Hobby Supplier

- GPMA2570Fuselage Set
- GPMA2572Wing Set
- GPMA2574Tail Set
- GPMA2576Landing Gear Set
- GPMA2578Windshield
- GPMA2580Hardware Pack

BUILDING INSTRUCTIONS

Assemble the Wing

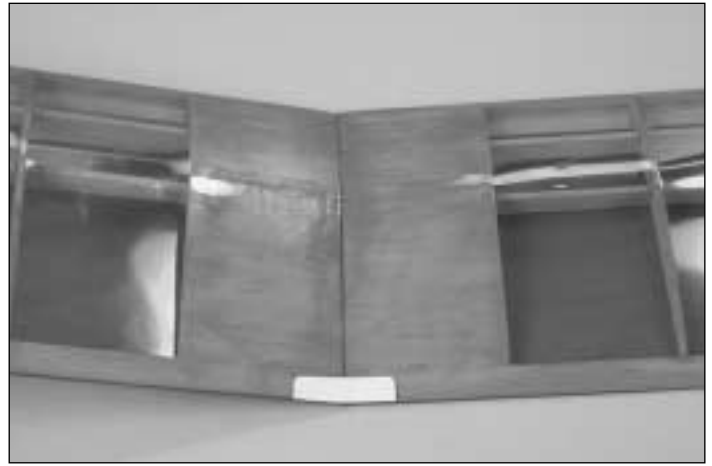
Note: Accurate assembly of the wing is critical. In addition to your first cursory reading, please read all steps in this section carefully prior to beginning wing assembly.



1. Test fit the **wing joiner** into the slots in the wing halves. Sand the joiners as required to get a tight, secure fit that allows the wing panels to mate as nicely as possible. **NOTE:** If the root ribs' angles aren't exactly the same, that's ok. The difference can be filled with epoxy when the wings are joined. The proper dihedral angle and the gluing of the wing joiner is far more important than the mating of the two wing panels.



2. Cover your workbench with wax paper.
3. With the left wing flat on your workbench and the center joint on the wax paper, raise the right wing 6-1/4" [160mm] to properly set the dihedral. Block the raised right wing at the desired height and make a mental note of the position needed for it to maintain that dihedral. Slide the left wing and joiner off the right wing.
4. Remove the joiner from the left wing. Cover the joiner, left and right wing ribs and pockets in the wing panels with a moderate but not excessive amount of 30-minute epoxy. Join the wing halves together. Ensure that the left wing remains flat and the right wing tip is 6-1/4" [160mm] from your work bench and can remain that way undisturbed for at least 4 hours, preferably overnight. **HINT:** Use masking tape to hold the wing together while the epoxy hardens. Remove any excess epoxy with a paper towel and denatured alcohol, being careful not to disturb the joint.

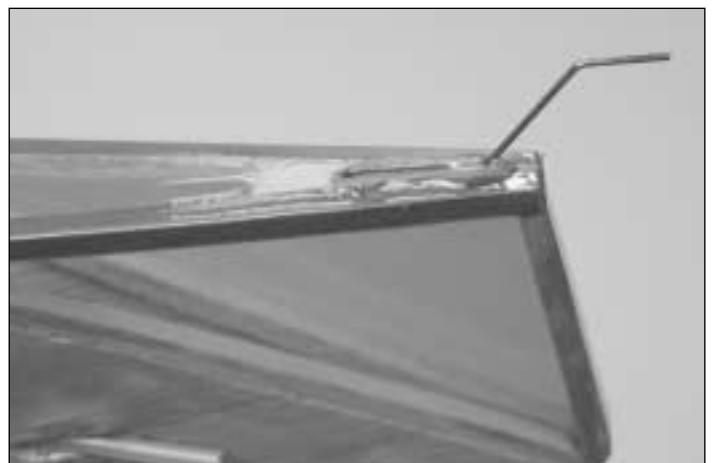


5. Glue the plastic **TE support** centered on the wing.

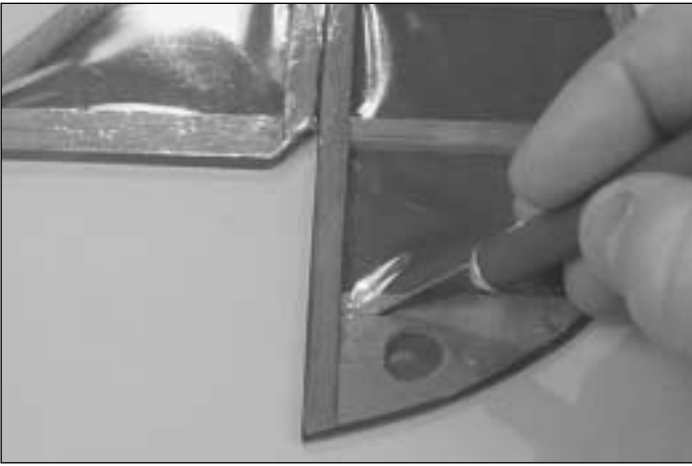
Assemble the Tail



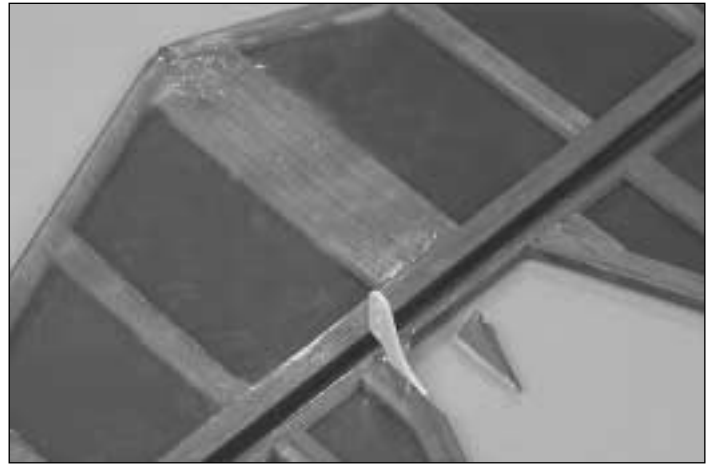
1. Place the fuselage upside-down on the workbench. Drill a 1/16" [1.6mm] hole centered on and 1" [25mm] from the end of the bottom of the fuselage.
2. Sand the area of the **tail skid** that contacts the fuse with coarse sandpaper.



3. Cover the sanded area of the tail skid with epoxy and glue the tail skid in place.



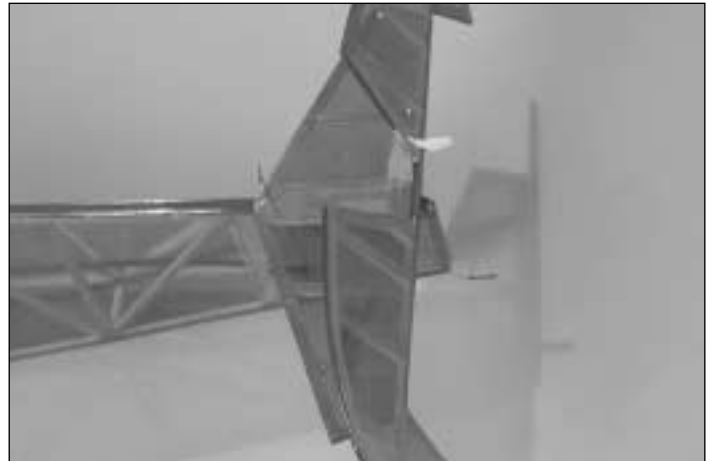
❑ 4. Remove the covering from the control horn slot on the left side of the rudder.



❑ 7. Glue the elevator control horn in place with medium CA. **Note:** The removed piece can be shaped and glued to the other side of the control horn for appearance if you desire, but it is not necessary.



❑ 5. Glue the rudder control into the slot with medium CA.



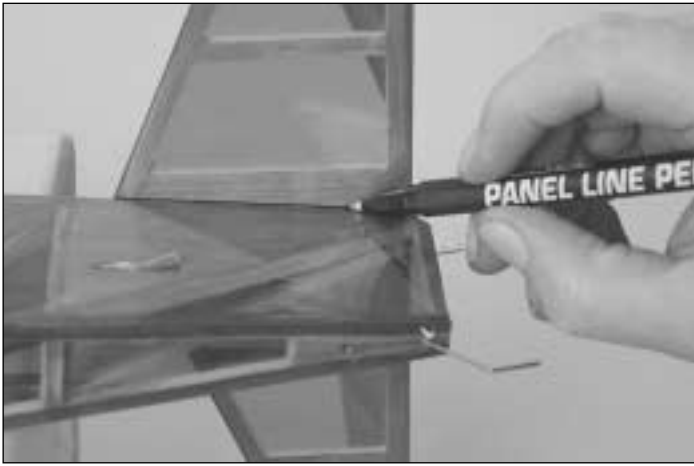
❑ 8. Center and align the TE of the stab with the TE of the fuse. Pin the front center of the stab to the center of the fuse. **Note:** Folding the elevator up makes aligning the TEs with each other easier.



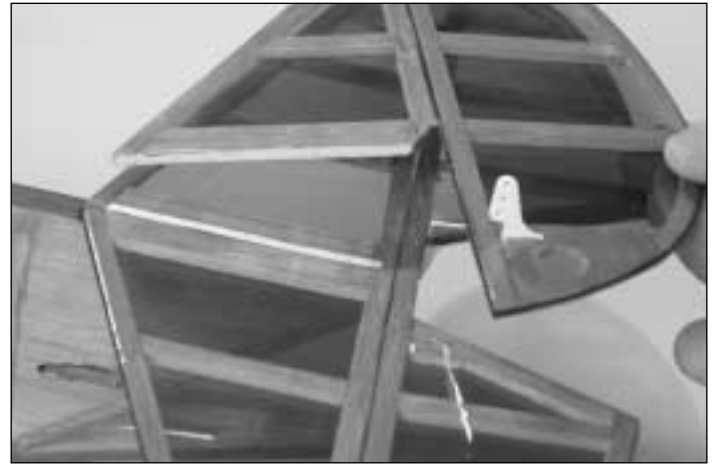
❑ 6. The bottom of the horizontal stab has the large gap for the elevator hinge. Place the stab upside-down on your work bench. Mark the inside end of the right elevator 1/4" [5mm] that is perpendicular to the elevator's leading edge, and that runs from behind the leading edge to the trailing of the stab. Carefully trim the inner edge off the elevator as shown.



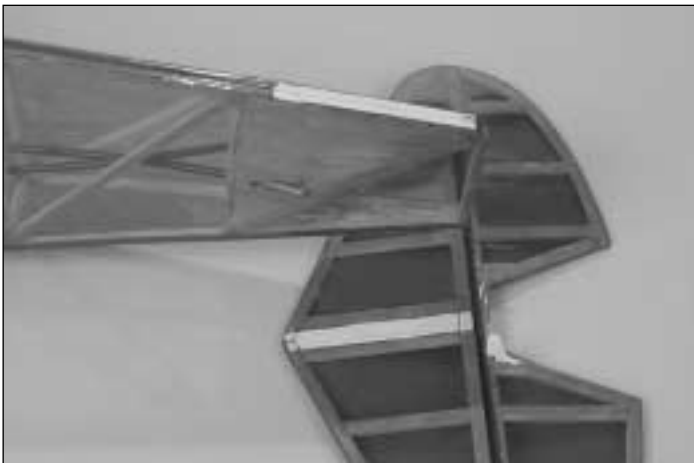
❑ 9. Attach a string to the wing dowel and pull it back to the left corner of the stab. Mark the string at that location on a piece of tape. Move the end of the string to the other side of the stab. Rotate the stab until both lengths are the same. Pin the TE of the stab to the fuse.



❑ 10. Using a felt-tip pen, mark the covering on the bottom of the stab where it contacts the fuse. Also mark the top of the fuse along the LE of the stab. **Note:** Be careful not to cut into the balsa stab when removing the covering.



❑ 13. Center the fin on the stab and align it with the center of the fuse. Mark the stab on both sides of the base of the fin. Remove the covering from the marked area of the top of the stab and the bottom of the fin. **Note:** Be careful not to cut into the balsa stab when removing the covering.



❑ 11. Remove the stab. Cut the covering from the marked area of the stab and from the mark on the top of the fuse to the rear of the stab saddle.



❑ 14. Glue the fin to the stab, making sure to keep it aligned with the centerline of the fuse and perpendicular to the stab.

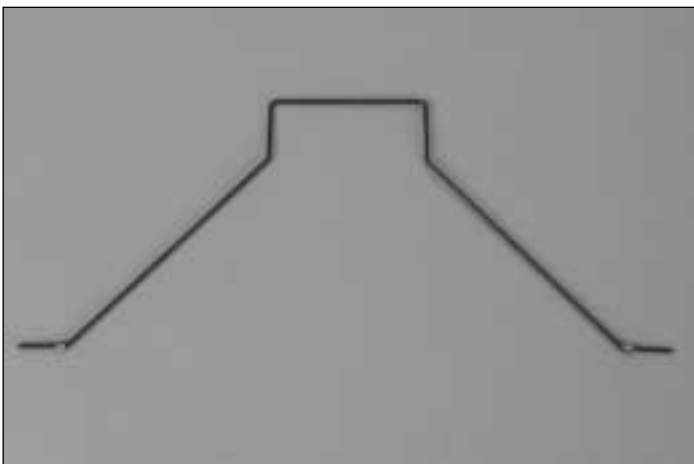


❑ 12. Mount the wing to the fuse with two long rubber bands. Pin the stab to the fuse. Lift the stab off, and coat the stab and fuse with epoxy. Reinstall the stab with the pin for guidance. Checking from behind the aircraft to make sure the stab is parallel with the wing, epoxy the stab in place.

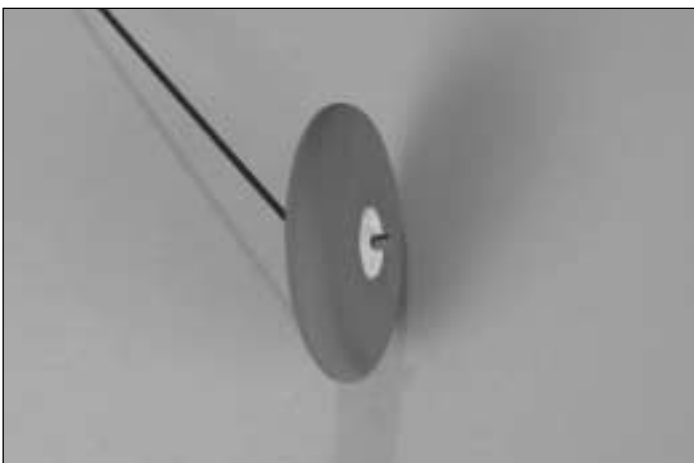
Install the Canopy and Main Gear



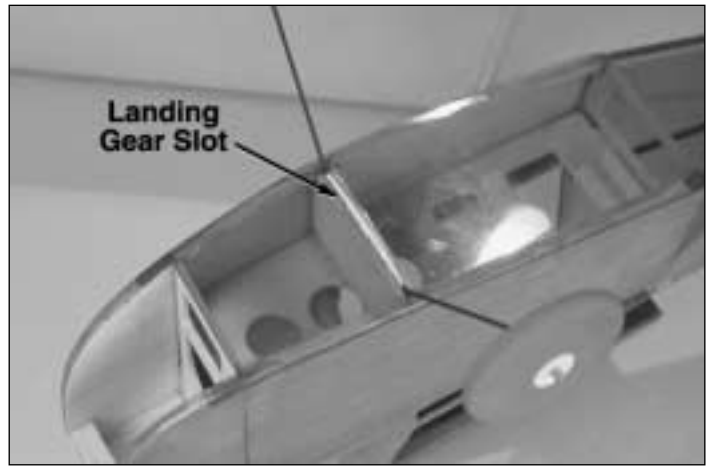
- ❑ 1. Remove the tape holding the canopy to the fuse. Cutting small amounts at a time with sharp scissors, fit the canopy. When satisfied with the fit, glue the canopy in place with canopy glue.



- ❑ 2. Push one plastic wheel collar on each axle.



- ❑ 3. Slide the wheels on the axles and hold them in place with the 2 remaining wheel collars.

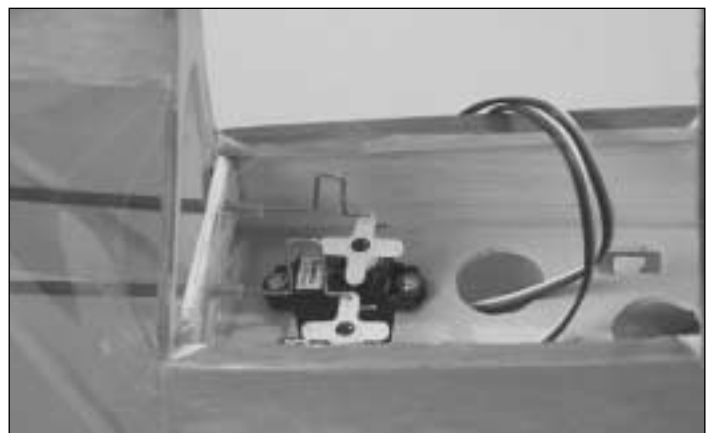


- ❑ 4. Remove the covering from the landing gear slot in the bottom of the fuse.
- ❑ 5. Fit the landing gear in the fuse. Lock the gear in place by gluing the 1/16" x 7/8" x 2" [1.6x22x50mm] balsa sheet in the landing gear slot.

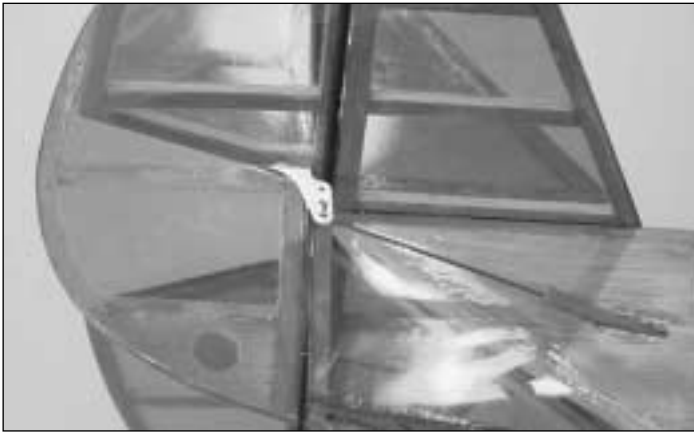
Install the Servos and Pushrods



- ❑ 1. Bend one end of both wire pushrods to the shape shown in the sketch.
- ❑ 2. Slide the straight end of the pushrods into the fuselage through the front of the pushrod tubes.



- ❑ 3. Fit two servos in the fuse. Plug the servos into your receiver. Turn on the transmitter and receiver to center the servos. Attach the pushrods to the servo arms. Making sure not to preload the pushrods, mount the servos to the servo tray with the hardware provided with your radio. Turn the transmitter and receiver off.
- ❑ 4. Being careful not to push the pushrod tubes, glue the balsa servo pushrod support to the former behind the servos.



❑ 5. Turn on the transmitter and receiver. Double-check that the elevator trim is centered and that the elevator is centered to the stab. Mark the pushrod at the location that the elevator pushrod crosses the hole in the control horn.

❑ 6. Cut the pushrod 1/2" [13mm] behind the mark on the pushrod. Bend the pushrod 90 degrees away from the fuse. Attach the pushrod to the middle hole of the control horn as shown.



❑ 7. Double-check that the rudder trim is centered and that the rudder is centered on the fin. Mark the rudder pushrod where it crosses the control horn.

❑ 8. Cut the pushrod 1/2" [13mm] behind the mark on the pushrod. Bend the pushrod 90 degrees towards the top of the fuse. Attach the pushrod to the control horn as shown.

Install the Motor

Note: The Headwind B is easily fitted with a variety of powerplants. We tested the model most extensively with the Great Planes T280GD ESC system with the 4.1:1 gear ratio, and these instructions are written to install that power system. We found that the GWS IPS IPS-DX2BB motor system was also a good choice, and a motor mount for the GWS system is included. Whatever motor you decide to use, make sure to use one of the supplied motor mounts so that the designed 2° of right thrust is built in.

❑ 1. Following the motor manufacturer's instructions, assemble your motor and gear box.



❑ 2. The front of the motor mount is plywood. Temporarily mount the gear box to the front of the motor mount with three #2-3/8" [10mm] screws (included with the T280GD ESC system). Remove the gear box from the motor mount.



❑ 3. Align the top, round shape of the motor mount to the same shape in the former at the front of the fuse. Glue in place.



❑ 4. Using the mount's top screw hole as a guide, drill a 3/16" [4.6mm] hole through the front of the fuse.



- 5. Re-mount the gear box and motor to the mount.

Complete Final Radio Installation



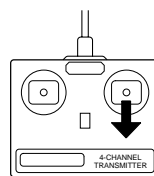
The battery and receiver mounting are used to adjust the center of gravity (CG). We recommend using the Great Planes Sanyo® 8 Cell 350 2/3AA NiCd to power your Headwind B. For now, temporarily position the battery and receiver in the radio compartment as shown, but do not secure in place. When setting the CG (below), adjust positioning as needed, remembering to also reposition the Velcro® and rubber band mounting to properly hold them in place.

GET THE MODEL READY TO FLY

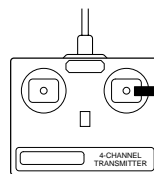
Check the Control Directions

- 1. Turn on the transmitter and receiver and center the trims. If necessary, remove the servo arms from the servos and reposition them so they are centered. Reinstall the screws that hold on the servo arms.
- 2. With the transmitter and receiver still on, check all the control surfaces to see if they are centered. If necessary, adjust the pushrods to center the control surfaces.

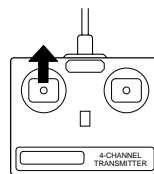
3-CHANNEL RADIO SETUP (STANDARD MODE 2)



ELEVATOR MOVES UP



RUDDER MOVES RIGHT



MOTOR TURNS

- 3. Make certain that the control surfaces respond in the correct direction as shown in the diagram. If any of the controls respond in the wrong direction, use the servo reversing in the transmitter to reverse the servos connected to those controls. Be certain the control surfaces have remained centered. Adjust if necessary.

Set the Control Throws

Use a Great Planes AccuThrow™ (or a ruler) to accurately measure and set the control throw of each control surface as indicated in the chart that follows. **NOTE:** The throws are measured at the widest part of the elevator and rudder.

These are the recommended control surface throws:

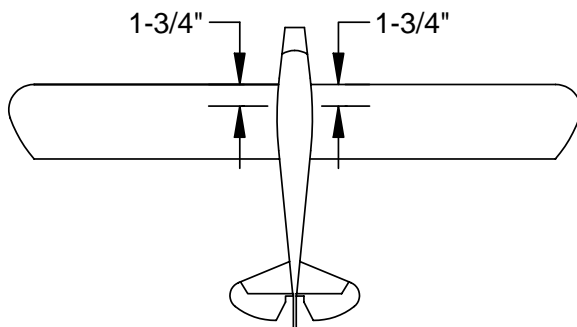
ELEVATOR:	1/2" [13mm] up 1/2" [13mm] down
RUDDER:	1" [25mm] right 1" [25mm] left

IMPORTANT: The Headwind B 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 successful first flights. If, after you have become accustomed to the way the Headwind B 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."

Balance the Model (C.G.)

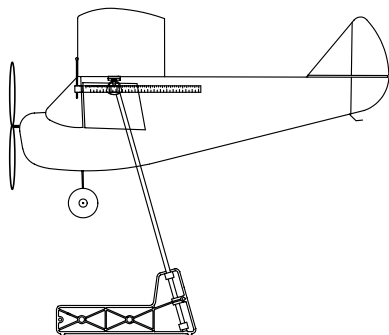
More than any other factor, the **C.G.** (balance point) can have the greatest effect on how a model flies, and may determine whether or not your first flight will be successful. If you value this model and wish to enjoy it for many flights, **DO NOT OVERLOOK THIS IMPORTANT PROCEDURE.** A model that is not properly balanced will be unstable and possibly unflyable.

At this stage the model should be in ready-to-fly condition with all of the systems in place including the motor, landing gear, and the radio system.



1. Use a felt-tip pen or 1/8"-wide [3mm] tape to accurately mark the C.G. on the bottom of the wing on both sides of the fuselage. **The C.G. is located 1-3/4" [45mm] back from the leading edge of the wing.**

This is where your model should balance for your first flights. Later, you may wish to experiment by shifting the C.G. through a range of 1-1/2" [38mm] to 2" [51mm] to change the flying characteristics. Moving the C.G. forward may improve the smoothness and stability, but it may then require more speed for takeoff and make it more difficult to slow for landing. Moving the C.G. aft makes the model more maneuverable, but could also cause it to become too difficult for you to control. In any case, start at the location we recommend and do not at any time balance your model outside the recommended range.



2. With the wing attached to the fuselage, and all parts of the model installed (ready to fly), place the model right-side-up on a Great Planes CG Machine, or lift it right-side-up at the balance point you marked.

3. If the tail drops, the model is "tail heavy" and the battery pack and/or receiver must be shifted forward or weight must be added to the nose to balance. If the nose drops, the model is "nose heavy" and the battery pack and/or receiver must be shifted aft or weight must be added to the tail to balance. If possible, relocate the battery pack and receiver to minimize or eliminate any additional ballast required. If additional weight is required, use Great Planes (GPMQ4485) "stick on" lead. A good place to add stick-on nose weight is to the firewall. Begin by placing incrementally increasing amounts of weight on the bottom of the fuse over the firewall until the model balances. Once you have determined the amount of weight required, it can be permanently attached. If required, tail weight may be added by cutting open the bottom of the fuse and gluing it permanently inside.

Note: Do not rely upon the adhesive on the back of the lead weight to permanently hold it in place. Over time, various factors could cause the weight to fall off. Use #2 sheet metal screws, RTV silicone or epoxy to permanently hold the weight in place.

4. **IMPORTANT:** If you found it necessary to add any weight, recheck the C.G. after the weight has been installed.

Balance the Model Laterally

1. With the wing level, have an assistant help you lift the model by the motor propeller shaft and the bottom of the fuse under the TE of the fin. Do this several times.

2. If one wing always drops when you lift the model, it means that side is heavy. Balance the airplane by adding weight to the other wing tip. **An airplane that has been laterally balanced will track better in loops and other maneuvers.**

PREFLIGHT

Identify Your Model

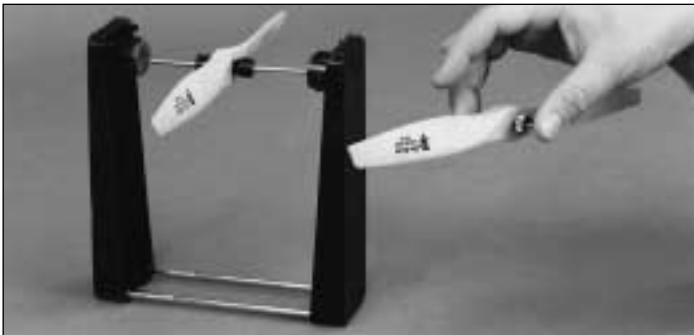
No matter if you fly at an AMA sanctioned R/C club site or if you fly somewhere on your own, you should always have your name, address, telephone number and AMA number on or inside your model. It is **required** at all AMA R/C club flying sites and AMA sanctioned flying events.

Charge the Batteries

Follow the battery charging instructions that came with your radio control 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.

NOTE: Checking the condition of the battery pack before EVERY flight, even if just off the charger, is **highly recommended**. All battery packs, whether it's a trusty pack you've just taken out of another model, or a new battery pack you just purchased, should be cycled, noting the discharge capacity. Oftentimes, a weak battery pack can be identified (and a valuable model saved!) by comparing its actual capacity to its rated capacity. Refer to the instructions and recommendations that come with your cycler. If you don't own a battery cycler, perhaps you can have a friend cycle your pack and note the capacity for you.

Balance Propellers



Carefully balance your propeller and spare propellers before you fly. An unbalanced prop can be the single most significant cause of vibration that can damage your model. For electric motors, proper balance is even more critical than glow motors. Not only will motor mounting screws and bolts loosen, possibly with disastrous effect, but vibration may also damage your radio receiver.

We use a Top Flite Precision Magnetic Prop Balancer™ (TOPQ5700) in the workshop and keep a Great Planes Fingertip Prop Balancer (GPMQ5000) in our flight box.

Ground Check

If the motor is new, follow the motor manufacturer's instructions to break-in the motor. After you run the motor on the model, inspect the model closely to make sure all screws remained tight, the prop is secure and all pushrods are secure.

Range Check

Ground check the operational range of your radio before the first flight of the day. With the transmitter antenna collapsed and the receiver and transmitter on, you should be able to walk at least 100 feet away from the model and still have control. Have an assistant stand by your model and, while you work the controls, tell you what the control surfaces are doing. Repeat this test **with the motor running** at various

speeds with an assistant holding the model, using hand signals to show you what is happening. 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 on old servo connectors, poor solder joints in your battery pack or a defective cell, or a damaged receiver crystal from a previous crash.

MOTOR SAFETY PRECAUTIONS

Failure to follow these safety precautions may result in severe injury to yourself and others.

- Get help from an experienced pilot when learning to operate motors.
- Use safety glasses when starting or running motors.
- Do not run the motor in an area of loose gravel or sand; the propeller may throw such material in your face or eyes.
- Keep your face and body as well as all spectators away from the plane of rotation of the propeller at all times that the motor is armed.
- Keep these items away from the prop: loose clothing, shirt sleeves, ties, scarfs, long hair or loose objects such as pencils or screwdrivers that may fall out of shirt or jacket pockets into the prop.
- **REMEMBER! This is an electric motor. Unlike a glow motor, it can start at any time without any movement of the prop by the user. ALWAYS take extreme care around your electric motor.**
- Make all motor adjustments from behind the rotating propeller.
- The motor gets hot! So does the battery pack and ESC. Do not touch it during or right after operation.
- Do not use hands, fingers or any other body part to try to stop the motor. Do not throw anything into the propeller of a running motor.

AMA SAFETY CODE (EXCERPT)

Read and abide by the following Academy of Model Aeronautics Official Safety Code:

General

1. I will not fly my model aircraft in sanctioned events, air shows, or model flying demonstrations until it has been proven to be airworthy by having been previously successfully flight tested.

2. I will not fly my model aircraft higher than approximately 400 feet within 3 miles of an airport without notifying the airport operator. I will give right of way to, and avoid flying in the proximity of full scale aircraft. Where necessary an observer shall be used to supervise flying to avoid having models fly in the proximity of full scale aircraft.

3. Where established, I will abide by the safety rules for the flying site I use, and I will not willfully and deliberately fly my models in a careless, reckless and/or dangerous manner.

7. I will not fly my model unless it is identified with my name and address or AMA number, on or in the model.

9. I will not operate models with pyrotechnics (any device that explodes, burns, or propels a projectile of any kind).

Radio Control

1. I will have completed a successful radio equipment ground check before the first flight of a new or repaired model.

2. I will not fly my model aircraft in the presence of spectators until I become a qualified flier, unless assisted by an experienced helper.

3. I will perform my initial turn after takeoff away from the pit or spectator areas, and I will not thereafter fly over pit or spectator areas, unless beyond my control.

4. I will operate my model using only radio control frequencies currently allowed by the Federal Communications Commission.

CHECKLIST

During the last few moments of preparation your mind may be elsewhere anticipating the excitement of the first flight. Because of this, you may be more likely to overlook certain checks and procedures that should be performed before the model is flown. To help avoid this, a checklist is provided to make sure these important areas are not overlooked. Many are covered in the instruction manual, so where appropriate, refer to the manual for complete instructions. Be sure to check the items as off they are completed (that's why it's called a *check list!*).

- 1. Check for proper safety operation of your speed control.
- 2. Check the C.G. according to the measurements provided in the manual.
- 3. Be certain the battery and receiver are securely mounted in the fuse. Simply stuffing them into place with foam rubber is not sufficient.
- 4. Extend your receiver antenna and make sure it has a strain relief inside the fuselage to keep tension off the solder joint inside the receiver.
- 5. Balance your model laterally as explained in the instructions.
- 6. Use threadlocking compound to secure critical fasteners such as the screws that hold the motor, etc.
- 7. Add a drop of oil to the axles so the wheels will turn freely.
- 8. Make sure all surfaces are held **securely** in place.
- 9. Reinforce holes for wood screws with thin CA where appropriate (servo mounting screws, cowl mounting screws, etc.).
- 10. Confirm that all controls operate in the correct direction and the throws are set up according to the manual.
- 11. Make sure that all servo arms are secured to the servos with the screws included with your radio.
- 12. Secure the connection between your battery pack and the on/off switch with vinyl tape, heat shrink tubing or special clips suitable for that purpose.
- 13. Make sure any servo extension cords you may have used do not interfere with other systems (servo arms, pushrods, etc.).
- 14. Use an incidence meter to check the wing for twists and attempt to correct before flying.
- 15. Balance your propeller (and spare propellers).
- 16. Tighten the propeller nut.
- 17. Place your name, address, AMA number and telephone number on or inside your model.
- 18. If you wish to photograph your model, do so before your first flight.
- 19. Range check your radio when you get to the flying field.

FLYING

The Headwind B is a great-flying model that flies smoothly and predictably. It possesses most of the self-recovery characteristics of a primary R/C trainer, but still should be flown only with the assistance of experienced R/C pilots.

CAUTION (THIS APPLIES TO ALL R/C AIRPLANES): If, while flying, you notice any unusual sounds, such as a low-pitched “buzz,” this may indicate control surface *flutter*. Because flutter can quickly destroy components of your airplane, any time you detect flutter you must **immediately** cut the throttle and land the airplane! Check all servo grommets for deterioration (this may indicate which surface fluttered), and make sure all pushrod linkages are secure and free of play. If the control surface fluttered once, it probably will flutter again under similar circumstances unless you can eliminate the free-play or flexing in the linkages. Here are some things which can cause flutter: Excessive hinge gap; Not mounting control horns solidly; Poor fit of clevis pin in horn; Side-play of pushrod in guide tube caused by tight bends; Poor fit of Z-bend in servo arm; Insufficient glue used when gluing in the elevator joiner wire; Excessive *play* or *backlash* in servo gears; and Insecure servo mounting.

Takeoff

Before you get ready to takeoff, see how the model handles on the ground by doing a few practice runs at **low speeds** on the runway. If you need to calm your nerves before the maiden flight, shut the motor down and bring the model back into the pits. Top off the battery with a quick peak charge, then check all fasteners and control linkages for peace of mind.

For your first few flights, it is a good idea to hand launch the model to retain as much power as possible for flight. ALWAYS have an experienced modeler who knows how to propel a model straight ahead complete the first tosses.

If you decide to do rolling take offs, then remember to takeoff into the wind. When you're ready, point the model straight down the runway, then gradually advance the throttle. Gain as much speed as your runway and flying site will practically allow before gently applying up elevator, lifting the model into the air. At this moment it is likely that you will need to apply more right rudder to counteract motor torque. Be smooth on the elevator stick, allowing the model to establish a **gentle** climb to a safe altitude before turning into the traffic pattern.

Flight

For reassurance and to keep an eye on other traffic, it is a good idea to have an assistant on the flight line with you. Tell him to remind you to throttle back once the plane gets to a comfortable altitude. While full throttle is usually desirable for takeoff, most models fly more smoothly at reduced speeds.

Take it easy with the Headwind B for the first few flights, gradually getting acquainted with it as you gain confidence. Adjust the trims to maintain straight and level flight. After flying around for a while, and while still at a safe altitude with plenty of battery power still left, practice slow flight and execute practice landing approaches by reducing the throttle to see how the model handles at slower speeds. Add power

to see how she climbs as well. Continue to fly around, executing various maneuvers and making mental notes (or having your assistant write them down) of what trim or C.G. changes may be required to fine tune the model so it flies the way you like. Mind your power response, but use this first flight to become familiar with your model before landing.

Landing

To initiate a landing approach, lower the throttle while on the downwind leg. Allow the nose of the model to pitch downward to gradually bleed off altitude. Continue to lose altitude, but maintain airspeed by keeping the nose down as you turn onto the crosswind leg. Make your final turn toward the runway (into the wind) keeping the nose down to maintain airspeed and control. Level the attitude when the model reaches the runway threshold, modulating the throttle as necessary to maintain your glide path and airspeed. If you are going to overshoot, smoothly advance the throttle (always ready on the right rudder to counteract torque) and climb out to make another attempt. When you're ready to make your landing flare and the model is a foot or so off the deck, smoothly increase up elevator until it gently touches down. Once the model is on the runway and has lost flying speed, hold up elevator to place the tail on the ground, regaining tail wheel control.

One final note about flying your model. Have a goal or flight plan in mind for **every** flight. This can be learning a new maneuver(s), improving a maneuver(s) you already know, or learning how the model behaves in certain conditions (such as on high or low rates). This is not necessarily to improve your skills (*though it is never a bad idea!*), but more importantly so you do not surprise yourself by impulsively attempting a maneuver and suddenly finding that you've run out of time, altitude or airspeed. Every maneuver should be deliberate, not impulsive. For example, if you're going to do a loop, check your altitude, mind the wind direction (anticipating rudder corrections that will be required to maintain heading), remember to throttle back at the top, and make certain you are on the desired rates (high/low rates). A flight plan greatly reduces the chances of crashing your model just because of poor planning and impulsive moves. **Remember to think.**

**Have a ball! But always stay in control
and fly in a safe manner.**

GOOD LUCK AND GREAT FLYING!

This model belongs to:	Name
	Address
	City, State Zip
	Phone number
	AMA number

ACCESSORIES AVAILABLE FROM GREAT PLANES

Receiver: R114F
 Servos: S3106 (2)
 Tx NiCd: 600mAh
 Rx NiCd: 250mAh
 Band: 72MHz

Futaba® 3FR FM Radio

*Single-stick simplicity,
 FM clarity and NiCd
 convenience, all in one!*



Great for economy, ease and efficiency, the 3FR offers a whole new angle on park flyer systems. Elevator and aileron (or rudder) control is centered on a single stick, the same way it is on 4-channel systems. Learn on the 3FR today and you're acquiring skills for future flights, too. Case design supports correct thumb placement with an "S" curve on the right, while a thumb recess on the left provides a better grip. A slide switch offers easy, proportional control of throttle, flap or spoiler. The on-board package includes an R114F receiver, two S3106 micro servos and a 250mAh NiCd for the receiver. There's also a 600mAh NiCd for the transmitter and an AC charger that can recharge both at once! 1-year warranty. **Note:** Should not be used on low-band channels 11-15. (FUTJ52**)

Great Planes® ElectriFly™ Mini FM Receivers



GPML0044 Low Band
 GPML0045 High Band

Worried about receiver-transmitter compatibility? Hook up an economical ElectriFly 4-Channel Mini FM receiver and it will automatically select the circuitry compatible with your Futaba®, JR®, Hitec®, or Airtronics® "Z" radios. Innovative circuitry makes them a match for most popular systems—their size, weight (just 10g!) and range* make them perfect for the Yard Stik and other small electrics. Designed for park, slow and indoor flyers, Mini FM Receivers feature SMT components for maximum dependability in an ultralight, compact unit. Available in high- and low-band versions on 72MHz. Require a short, single-conversion Futaba FM crystal, available separately. 1-year warranty.

***Note:** ElectriFly Receivers are suitable for use with Park Flyers and other aircraft that require a ground reception range of 900 feet (max.).

Great Planes® ElectriFly™ Peak Charger



**Peak charging convenience
 for Park Flyers!**

Designed for small, lightweight electrics and transmitter batteries, this charger can also be used with any 6-8 cell NiCd or NiMH pack. It plugs into a power supply or cigarette lighter for fast charges. Pulsed current charging protects small packs from overheating. Charge rate adjusts to 200mAh or 600mAh. A 15mA trickle charge keeps packs topped off for use anytime. Includes 2-pin connector for ElectriFly packs; adapters available separately. 1-year warranty. (GPMM3000)