

# F6F HELLCAT

ARF

## INSTRUCTION MANUAL



**Wingspan:** 32 in [810mm]  
**Wing Area:** 190 sq in [12.3 dm<sup>2</sup>]  
**Weight:** 16 oz [454g]  
**Wing Loading:** 11 oz/ft<sup>2</sup> [34 g/dm<sup>2</sup>]  
**Length:** 25 in [635mm]  
**Radio:** 3 Channel w/ 2 micro (9g) servos and 10 Amp ESC  
**Power System:** Included S280BB Motor with Gearbox

### 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.**

To make a warranty claim send the defective part or item to Hobby Services at the address below:

Hobby Services  
3002 N. Apollo Dr. Suite 1  
Champaign IL 61822 USA

Include a letter stating your name, return shipping address, as much contact information as possible (daytime telephone number, fax number, e-mail address), a detailed description of the problem and a photocopy of the purchase receipt. Upon receipt of the package the problem will be evaluated as quickly as possible.

**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

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## INTRODUCTION

Thank you for purchasing the Great Planes Hellcat Park Flyer ARF! The Hellcat was one of the most important aircraft to the US Navy during World War II. This fighter and the F4U corsair became the most infamous pair among Japanese pilots in the Pacific resulting in a ratio of kills to losses of 11:1. Now you too can fly this outstanding heavy fighter from the WWII era.

For the latest technical updates or manual corrections to the Great Planes Hellcat Park Flyer ARF, visit the ElectriFly web site at [www.electrifly.com](http://www.electrifly.com). Then, select the Great Planes Hellcat Park Flyer ARF. If there is new technical information or changes to this model, a "tech notice" box will appear in the upper left corner of the page

## AMA

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

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

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

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

2. You must assemble the model **according to the instructions**. Do not alter or modify the model, as doing so may result in an unsafe or unflyable model. In a few cases the instructions may differ slightly from the photos. In those instances the written instructions should be considered as correct.

3. You must take time to **build straight, true and strong**.

4. You must use an R/C radio system that is in first-class condition.

5. You must correctly install all R/C and other components so that the model operates correctly on the ground and in the air.

6. You must check the operation of the model before **every** flight to insure that all equipment is operating and that the model has remained structurally sound. Be sure to check clevises or other connectors often and replace them if they show any signs of wear or fatigue.

7. If you are not an experienced pilot or have not flown this type of model before, we recommend that you get the assistance of an experienced pilot in your R/C club for your first flights. If you're not a member of a club, your local hobby shop has information about clubs in your area whose membership includes experienced pilots.

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

**Remember: Take your time and follow the instructions to end up with a well-built model that is straight and true.**

## **ADDITIONAL ITEMS REQUIRED**

### **Required Radio Gear**

- 3-Channel Radio system
- (2) S3103 Micro servos (FUTM0037)  
**or**
- (2) S3108 Micro servos (FUTM0042)
- (1) 6" [152mm] Servo Extension (HCAM2000)
- R114F-FM72MHZ Low (FUTL0442) or High band (FUTL0443) Receiver
- Low band short FM receiver crystal (FUTL62\*\*) or high band (FUTL63\*\*)
- Flight battery, either the 2-Cell 1500mAh LiPo pack from Great Planes (GPMP0830) or 8-cell 650mAh NiMH pack (GPMP0106)
- 10 Amp ESC such as the Great Planes C-10 Electronic Speed Control (GPMM2010)
- Deans Male Ultra Plug (WSDM1302) (needed only for use with LiPo Battery)

### **Charger**

If using the 2-cell 1500mAh LiPo pack, a charger capable of charging 2-cell (7.4V) LiPo batteries such as the Electrify PolyCharge 1-3 cell LiPo charger (GPMM3010) must be used. If using another charger, it **must** be a LiPo charger or have a LiPo charging mode. **Never** charge LiPo batteries with chargers not intended for LiPo batteries or chargers on NiMH or NiCd settings. Overcharging or explosion may result. In addition to the PolyCharge, the ElectriFly Triton™ (GPMM3150) or Accu-Cycle Elite™ (HCAPO280) are also suitable chargers. The Triton and Accu-Cycle Elite are suitable for charging NiMH and NiCd batteries used to fly the Great Planes Hellcat Park Flyer ARF.

### **Adhesives and Building Supplies**

This is the list of Adhesives and Building Supplies that are required to finish the **Great Planes Hellcat Park Flyer ARF**. Due to the foam construction, only foam safe glues and epoxy can be used for assembly. Regular CA is not recommended as it will aggressively attack the foam parts used in this model. In addition to being foam compatible, the foam-safe CA is also suitable for gluing together all of the rest of the materials (balsa, carbon, etc...) included in this ARF.

- 1oz Great Planes CA Medium Foam Safe (GPMR6069)
- 1oz Great Planes CA Thick Foam Safe (GPMR6072)

## Optional Supplies and Tools

Here is a list of optional tools mentioned in the manual that will help you build the Great Planes Hellcat park flyer.

- Great Planes Pro™ Epoxy 6 Minute Formula 4oz (GPMR6042)
- Great Planes Pro Epoxy 30 Minute Formula 4oz (GPMR6043)
- Great Planes Double-Sided Servo Tape 1/2"X3' [13 x 914mm] (GPMQ4440)
- Hobbico® #1 Hobby knife (HCAR0105)
- Great Planes 2 oz. [57g] spray CA activator (GPMR6035)
- Great Planes CA debonder (GPMR6039)
- Hobbico Pliers with wire cutter (HCAR0630)
- Robart Super Stand II (ROBP1402)
- Great Planes Threadlocker thread locking cement (GPMR6060)
- Great Planes CG Machine™ (GPMR2400)
- 1/16" Drill bit

## IMPORTANT BUILDING NOTES

- There are two types of screws used in this kit:

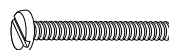
**Sheet metal screws** are designated by a number and a length.



For example #6 x 3/4" [19mm]

*This is a number six screw that is 3/4" [19mm] long.*

**Machine screws** are designated by a number, **threads per inch**, and a length.



For example 4-40 x 3/4" [19mm]

*This is a number four screw that is 3/4" [19mm] long with forty threads per inch.*

- 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.

- Whenever just **epoxy** is specified you may use **either** 30-minute (or 45-minute) epoxy **or** 6-minute epoxy. When 30-minute epoxy is specified it is **highly** recommended that you use only 30-minute (or 45-minute) epoxy, because you will need the working time and/or the additional strength.

- **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 stabilizer and wing incidences and motor thrust angles have been factory-built into this model. However, some technically minded modelers may wish to check these measurements anyway. To view this information visit the web site at **www.greatplanes.com** and click on "Technical Data." Due to manufacturing tolerances which will have little or no effect on the way your model will fly, please expect slight deviations between your model and the published values.

## COMMON ABBREVIATIONS

Fuse = Fuselage

Fin = Vertical Fin

LE = Leading Edge

TE = Trailing Edge

LG = Landing Gear

Ply = Plywood

Stab = Horizontal Stabilizer

" = Inches

SHCS = Socket Head Cap Screw

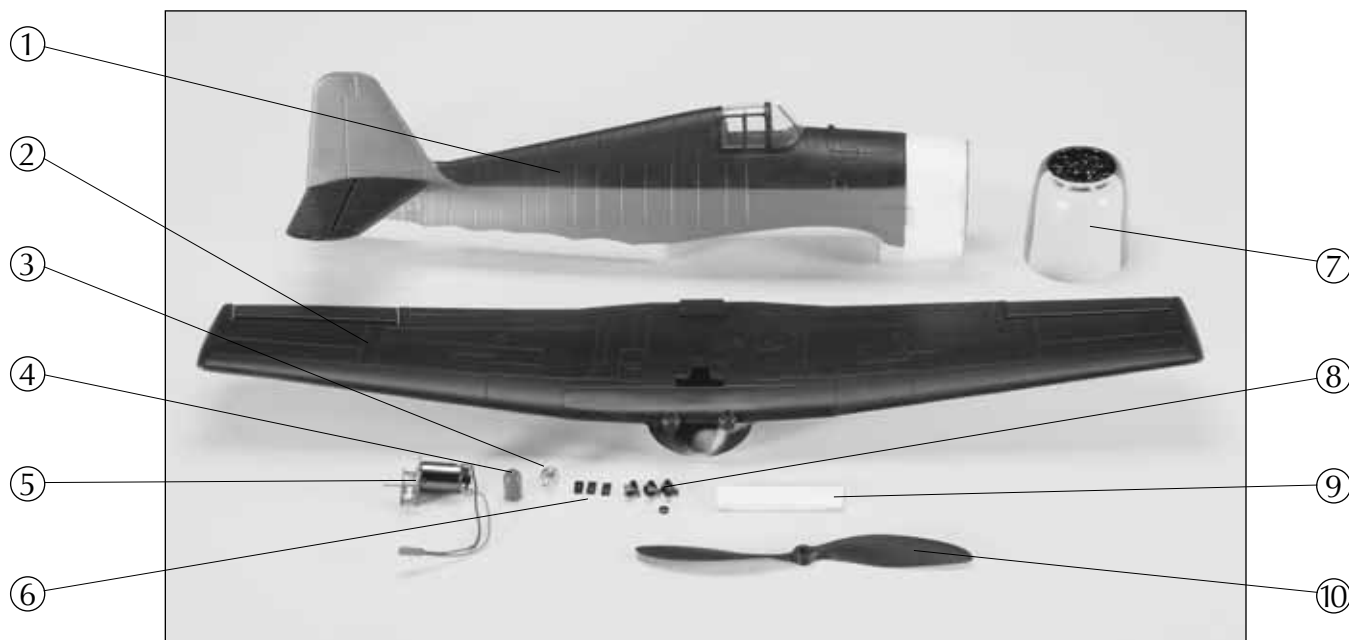
mm = Millimeters

## KIT INSPECTION

Before starting to build, take an inventory of this kit to make sure it is complete, and inspect the parts to make sure they are of acceptable quality. If any parts are missing or are not of acceptable quality, or if you need assistance with assembly, contact **Product Support**. When reporting defective or missing parts, use the part names exactly as they are written in the Kit Contents list.

**Great Planes Product Support:**  
3002 N Apollo Drive, Suite 1  
Champaign, IL 61822  
Telephone: (217) 398-8970, ext. 5  
Fax: (217) 398-7721  
E-mail: [airsupport@greatplanes.com](mailto:airsupport@greatplanes.com)

## KIT CONTENTS



### Kit Contents (Photographed)

- 1 Fuselage
- 2 Wing
- 3 Prop Adapter
- 4 Nose Cone
- 5 Motor and Gear Drive

- 6 Control Horn Keepers
- 7 Cowl
- 8 Control Horns
- 9 Hook and Loop
- 10 Propeller

### Kit Contents (Not Photographed)

- Control Horns (3)
- Control Horn Retainers (3)
- Pushrod Snap Keepers (3)
- Aileron Pushrods (2)

- Elevator Pushrod (1) + guide
- 3 x 20mm Wood Screw (1)
- 2x13mm Sheet Metal Screw (3)
- Quick Connectors (2)

# ORDERING REPLACEMENT PARTS

Replacement parts for the Great Planes Hellcat Park Flyer ARF are available using the order numbers in the **Replacement Parts List** that follows. The fastest, most economical service can be provided by your hobby dealer or mail-order company.

To locate a hobby dealer, visit the Hobbico web site at [www.hobbico.com](http://www.hobbico.com). Choose "Where to Buy" at the bottom of the menu on the left side of the page. Follow the instructions provided on the page to locate a U.S., Canadian or International dealer. If a hobby shop is not available, replacement parts may also be ordered from Tower Hobbies® at [www.towerhobbies.com](http://www.towerhobbies.com), or by calling toll free (800) 637-6050.

Parts may also be ordered directly from Hobby Services by calling (217) 398-0007, or via facsimile at (217) 398-7721, but full retail prices and shipping and handling charges will apply. Illinois and Nevada residents will also be charged sales tax. If ordering via fax, include a Visa® or MasterCard® number and expiration date for payment.

Mail parts orders and payments by personal check to:

Hobby Services  
3002 N Apollo Drive, Suite 1  
Champaign IL 61822

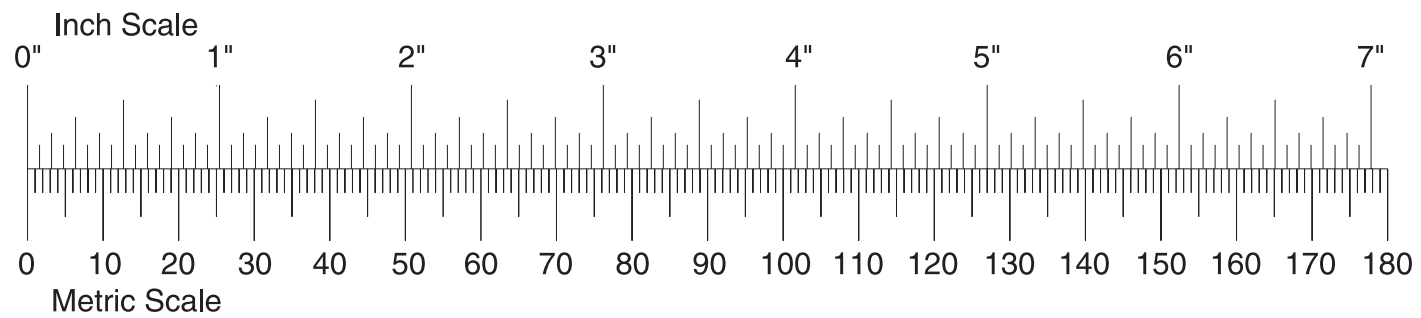
Be certain to specify the order number exactly as listed in the **Replacement Parts List**. Payment by credit card or personal check only; no C.O.D.

If additional assistance is required for any reason contact Product Support by e-mail at [productsupport@greatplanes.com](mailto:productsupport@greatplanes.com), or by telephone at (217) 398-8970.

## REPLACEMENT PARTS LIST

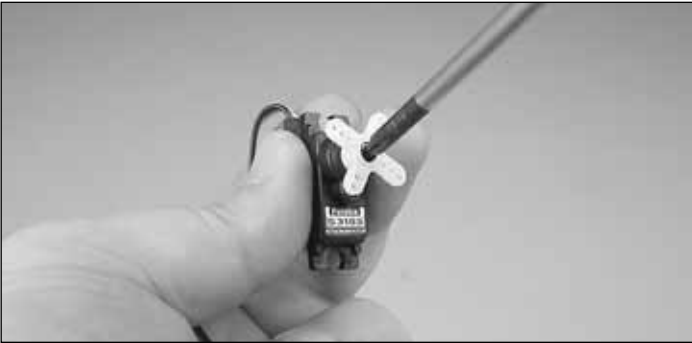
ORDER NUMBER	DESCRIPTION	HOW TO PURCHASE
GPMA2631.....	WING SET HELLCAT EP.....	Hobby Supplier
GPMA2632.....	FUSELAGE SET HELLCAT EP W/TAIL.....	Hobby Supplier
GPMA2633.....	COWL HELLCAT EP.....	Hobby Supplier
GPMA2634.....	CANOPY HELLCAT EP.....	Hobby Supplier
GPMA2635.....	DECAL SET HELLCAT EP.....	Hobby Supplier
GPMG0260.....	GEAR DRIVE CORSAIR/HELLCAT.....	Hobby Supplier
GPMG0261.....	MAIN GEAR CORSAIR/HELLCAT.....	Hobby Supplier
GPMG0262.....	PINION GEAR CORSAIR/HELLCAT.....	Hobby Supplier
GPMG0311.....	Motor.....	Hobby Supplier
	Missing pieces.....	Contact Product Support
	Instruction manual.....	Contact Product Support
	Full-size plans.....	Not available

**To convert inches to millimeters, multiply inches by 25.4**



# BUILDING INSTRUCTIONS

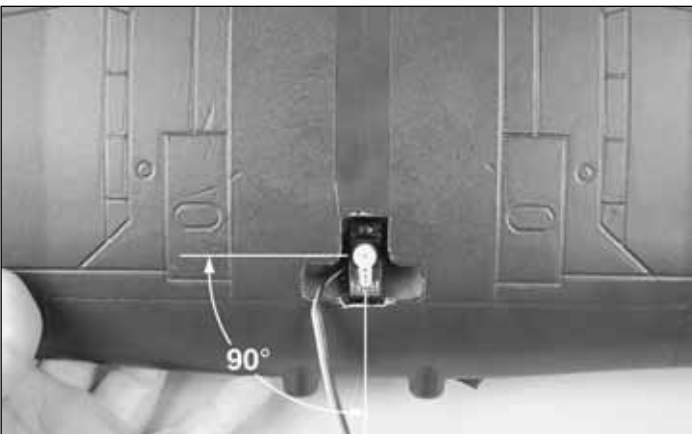
## Aileron Installation



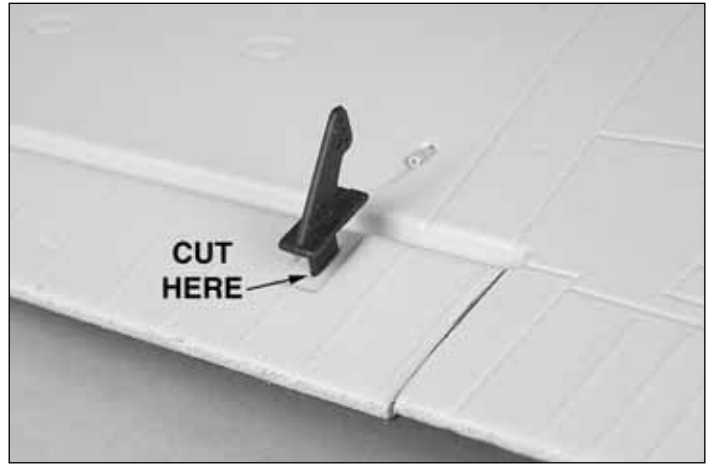
1. Remove the servo arm before inserting the aileron servo as shown. If necessary, trim the foam slightly to allow the servo to clear the wing opening. The servo lead should exit the servo bay through the notch in the servo tray.

2. Glue the servo in place using **thick, foam safe CA**. Epoxy may be used to glue the servo, but CA is easier to remove should the servo need replacing in the future.

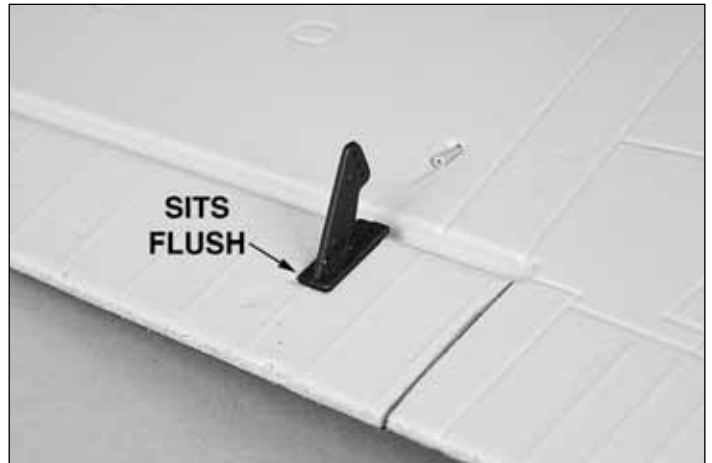
3. Temporarily connect the aileron servo to your radio system. Be sure all sticks and trims are centered when you turn on the radio. This will center the aileron servo.



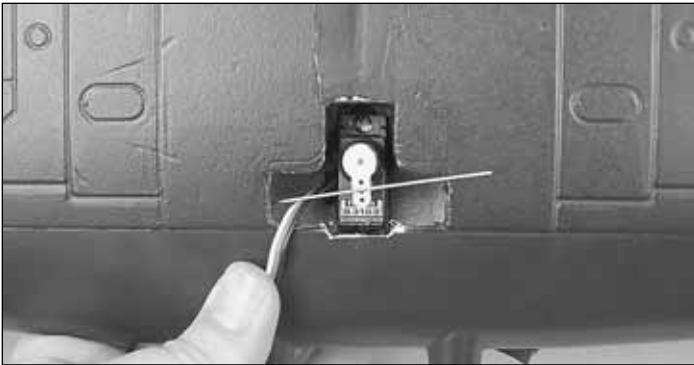
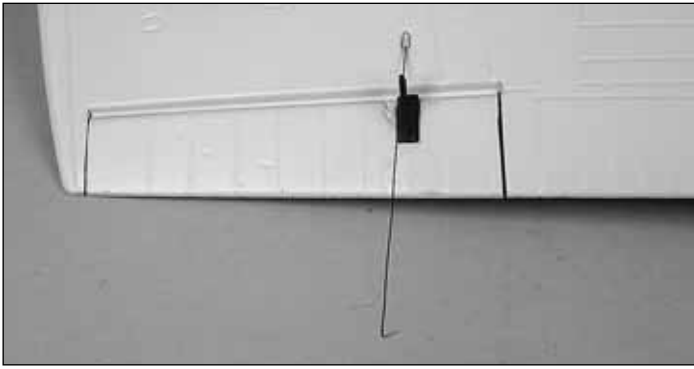
4. Attach a servo arm to the servo as shown and cut off the unused arms. The arm should point straight towards the LE with the servo centered.



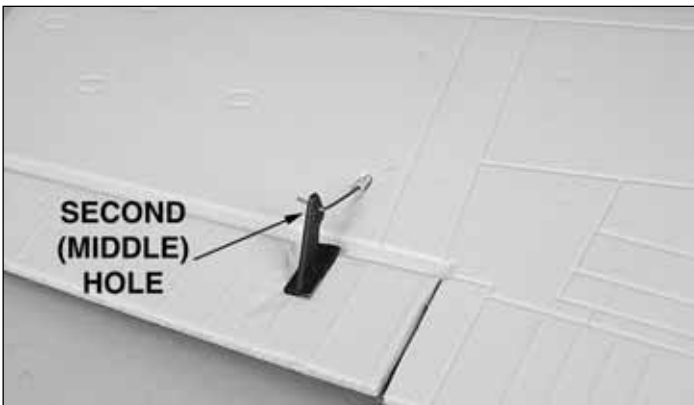
5. Locate one of the **black nylon control horns**. Make a small cut through the aileron in the area marked for the control horn.



6. Apply a drop or two of thick, foam safe CA to the control horn and push it through the cut. The horn should sit flush on the aileron. Press a **black nylon back plate** onto the control horn as shown. Glue the back plate in place using thin, foam safe CA.

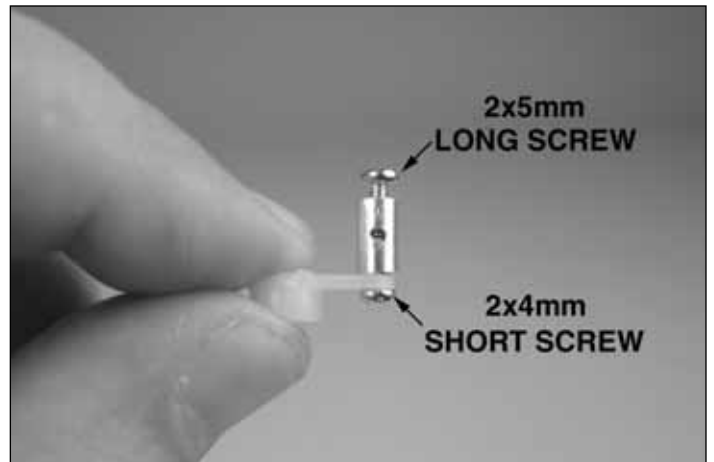
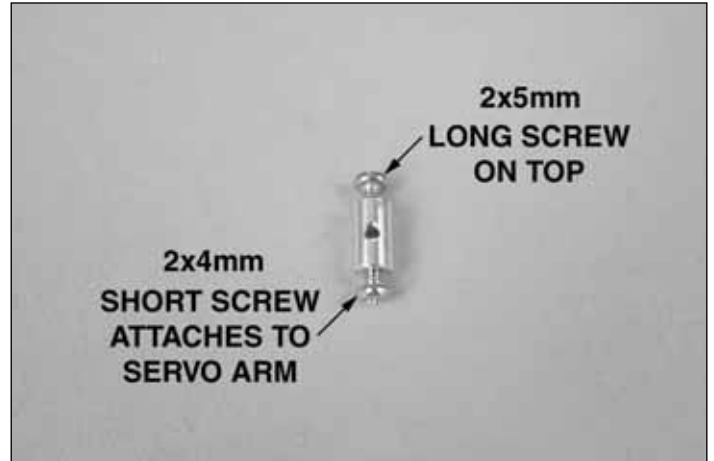


7. Locate one 14" [356mm] bent aileron pushrod wire. Slide the wire into the pushrod guide tube located near the control horn as shown.



8. Insert the bent end of the pushrod into the middle hole on the control horn. Attach a **black nylon control horn keeper** to the pushrod as shown. Secure the snap keeper to the pushrod with a drop of thin foam safe CA.

9. Repeat steps 4 through 8 for the other side of the wing.



10. Locate one of the **pushrod quick connectors**. Remove the servo arm and attach the quick connector as shown. Use a sharp hobby knife to enlarge the hole in the arm to allow the connector to rotate freely. Add a drop of Threadlocker to the bottom screw to prevent it from backing out.

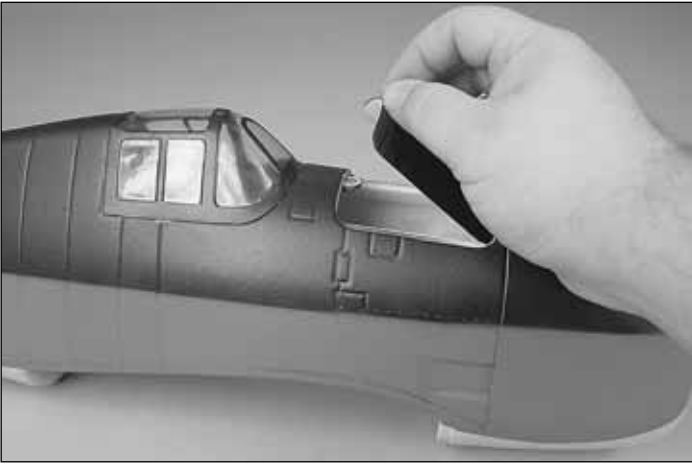


11. Slide both aileron pushrods through the hole in the quick connect as shown and reattach the servo arm.

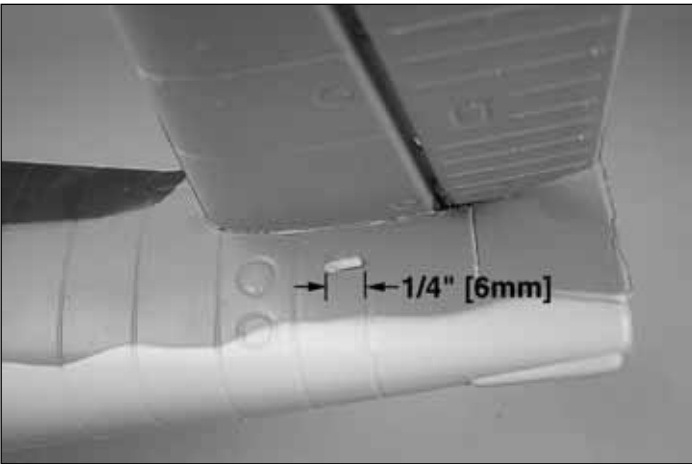
12. Center both ailerons and then tighten the long screw on the quick connector to secure the aileron pushrods.



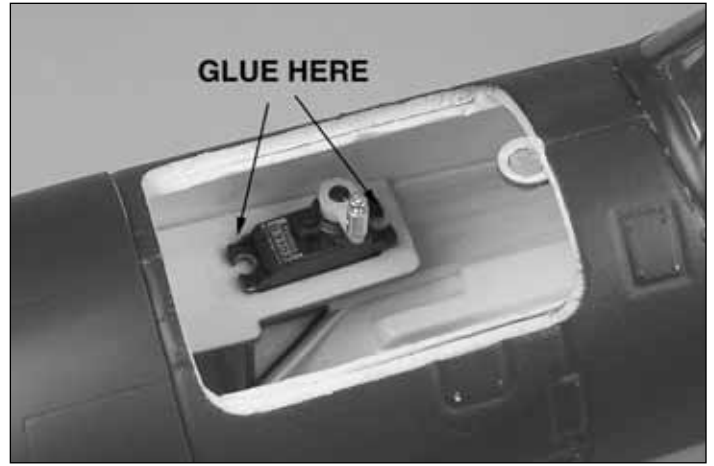
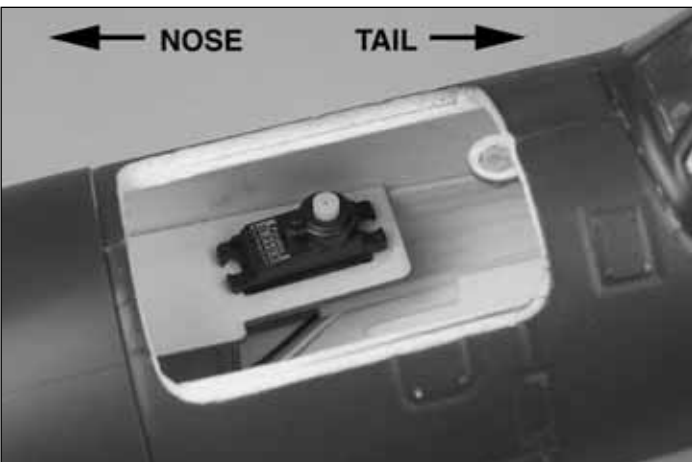
## Elevator Installation



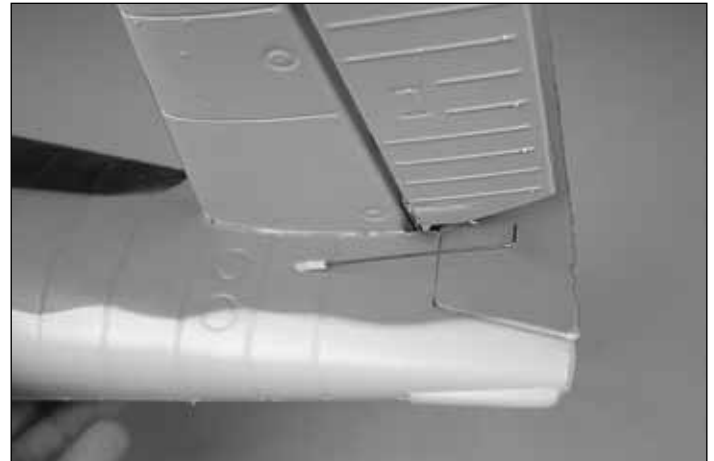
❑ 1. Remove the **battery hatch** from the fuselage by pulling straight up on the tab as shown. The hatch is held in place by a magnet.



❑ 2. Slide the **elevator pushrod guide** into the hole in the rear of the fuselage as shown. Leave 1/4" [6mm] extending out of the fuselage. Add a couple drops of thick, foam safe CA to secure the tube in place.



❑ 3. Install the elevator servo as shown. Be sure to remove the servo arm prior to gluing the servo in place. Install a quick connector in the outer hole on the servo arm and reattach it to the servo.



❑ 4. Insert the 20-3/4" [527mm] **elevator pushrod wire** into the pushrod guide. When the wire enters the radio compartment, guide it into the servo quick connector. Do not tighten the quick connector yet.



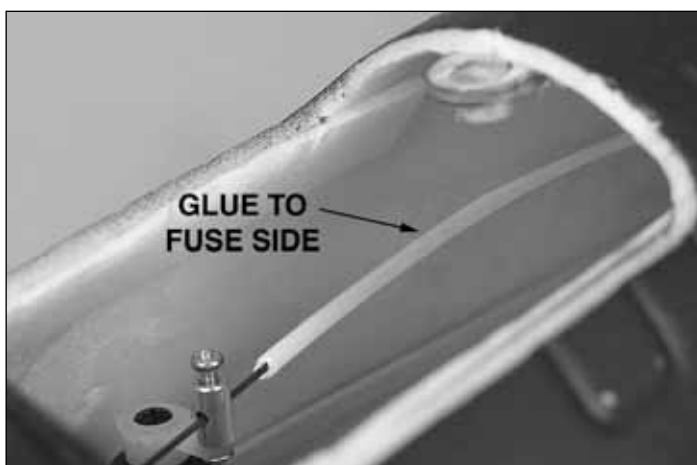
❑ 5. Align the elevator control horn with the pushrod as shown. Align the holes in the control horn with the hinge line. As before, cut a small slot in the elevator and install the control horn as shown.



❑ 6. Insert the pushrod into the middle hole on the control horn. Attach a snap keeper to the pushrod and secure it to the pushrod with a drop of thin foam safe CA.

❑ 7. Temporarily connect the elevator servo to your radio system and center it.

❑ 8. Center the elevator. Add a drop of Threadlocker to the quick connect long screw and tighten it to secure the pushrod.



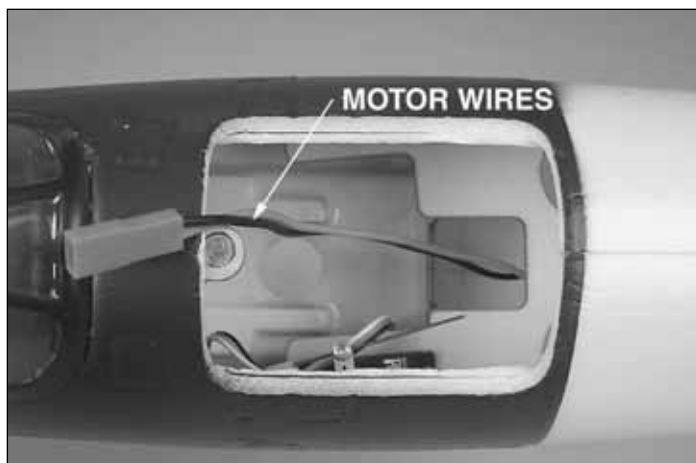
❑ 9. With the elevator at neutral, glue the pushrod guide tube to the fuselage at the point shown.

❑ 10. Trim off excess pushrod wire.

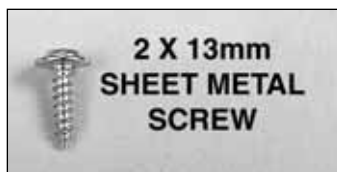
## Motor Installation



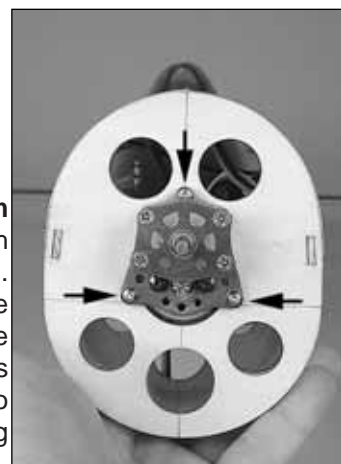
❑ 1. Locate the **motor and gearbox assembly**.



❑ 2. Remove the **cowl** and slide the motor assembly into the **firewall** as shown. The motor leads route into the radio compartment from below.



❑ 3. Using **three 2 x 13mm sheet metal screws**, attach the gearbox to the firewall. There are holes predrilled in the firewall as a guide. Remove the screws and harden the holes with thin CA. Allow the CA to fully harden before reinstalling the screws.

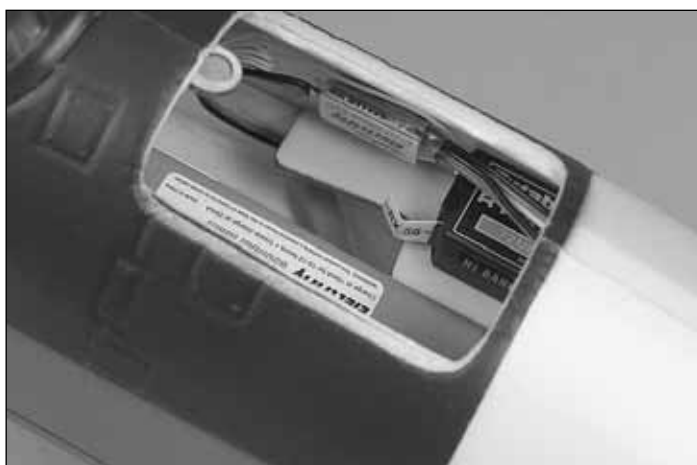


## Radio and Battery Installation



❑ 1. Attach the “Hook,” or rough side, of the supplied **hook and loop** tape to the battery tray inside the radio compartment. Attach the “loop,” or soft side, of the hook and loop tape to the underside of the battery. Install the battery as shown.

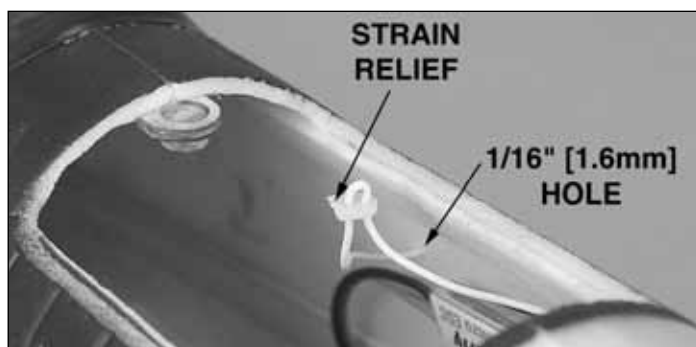
❑ 2. Using leftover hook and loop tape, or **double sided servo tape**, mount the receiver in the radio compartment.



❑ 3. Connect the **electronic speed control (ESC)** and elevator servo to the receiver.



❑ 4. Connect a **6" [153mm] servo extension** to the aileron channel on your receiver. Route the extension below the radio tray and out the middle hole in the leading edge of the wing saddle as shown in the photo.



❑ 5. Drill a 1/16" [1.6mm] hole in the side of the fuse near the receiver. The exact location is not important. Route the antenna out of this hole and along the fuse side. Make sure you have a strain relief on the antenna where it exits the fuselage to keep the pressure off of the solder joints in the receiver. Secure the antenna to the fuselage with clear tape.

❑ 6. Reinstall the battery hatch.

## FINAL PREPARATIONS

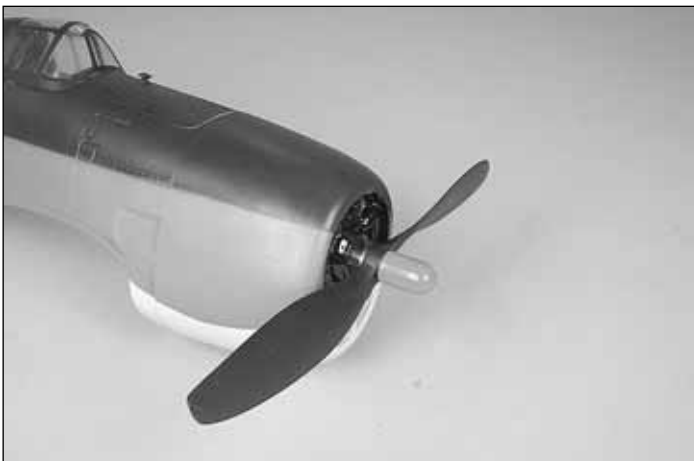
### Propeller Installation



- 1. Attach the cowling to the fuselage. Add a very small drop of thin foam safe CA to each side of the fuselage where the cowl slides on. This will help hold it on while in the air, but also allow it to come off later for access to the motor.



- 2. Slide the **prop and prop adapter** onto the gearbox shaft. Install the prop washer with the flange forward. Tighten the **prop adapter nut** to secure it to the shaft.



- 3. Snap the **nose cone** onto the prop adapter.

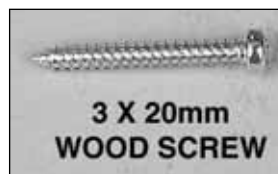
### Main Wing Installation



- 1. Connect the aileron servo lead to the extension coming from the fuselage. Slide the wing in place slowly while feeding the wires back into the fuselage.



- 2. Align the wing LE with the holes in the fuselage former and slide it into place.



- 3. Secure the wing to the fuselage using the **3 x 20mm wood screw**. **Do not overtighten!**



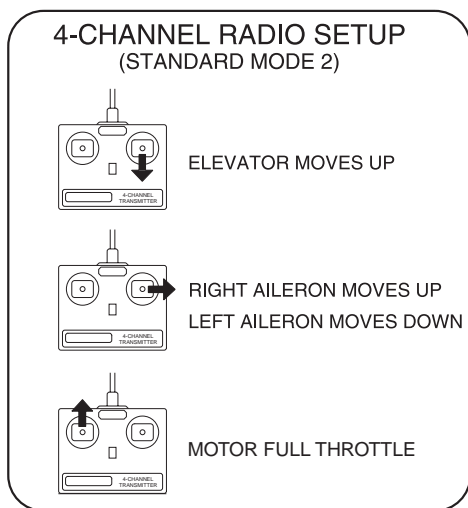
## Apply the Decals

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

## 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 clevises on the pushrods to center the control surfaces.



3. Make certain that the control surfaces and the throttle 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. If your radio does not have dual rates, we recommend setting the throws at the **low** rate setting.

**NOTE:** The throws are measured at the **widest part** of the elevators and ailerons.

These are the recommended control surface throws:

	High Rate	Low Rate
<b>ELEVATOR</b>	3/8" [10mm] up 3/8" [10mm] down	3/16" [5mm] up 3/16" [5mm] down
<b>AILERONS</b>	3/8" [10mm] up 5/16" [8mm] down	1/4" [6mm] up 1/8" [3mm] down

**IMPORTANT:** The Great Planes Hellcat Park Flyer ARF 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 Great Planes Hellcat Park Flyer ARF 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.”

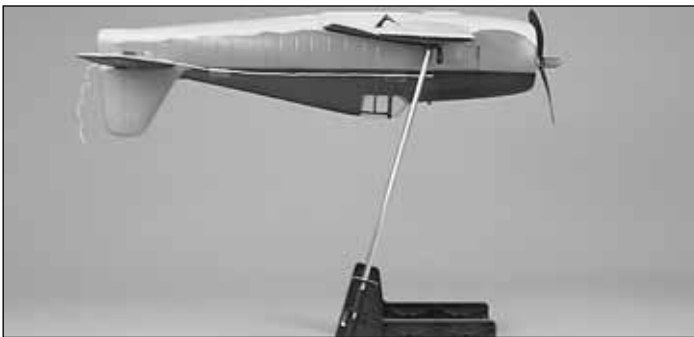
## Balance the Model CG

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, battery and the radio system.

1. Use a felt-tip pen or 1/8" [3mm]-wide tape to accurately mark the C.G. on the top of the wing on both sides of the fuselage. The C.G. is located 2" [51mm] back from the leading edge of the wing at the root.

This is where your model should balance for the first flights. Later, you may wish to experiment by shifting the C.G. up to 1/4" [6.4mm] forward or 1/4" [6.4mm] back to change the flying characteristics. Moving the C.G. forward may improve the smoothness and stability, but the model 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 to control. In any case, **start at the recommended balance point** and do not at any time balance the model outside the specified range.



2. With the wing attached to the fuselage and all parts of the model installed (ready to fly), place the model upside-down on a Great Planes CG Machine, or lift it upside-down 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, nose weight may be easily added by using Great Planes (GPMQ4485) "stick-on" lead. A good place to add stick-on nose weight is to the firewall (don't attach weight to the cowl—it is not intended to support weight). 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.

**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 and airplane batteries the night before you go flying, and at other times as recommended by the radio manufacturer.

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

### ***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. Vibration may also damage your radio receiver and battery. 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.

## 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 electric 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 as you start and run the motor.

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.

The motor gets hot! 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 (EXCERPTS)

Read and abide by the following excerpts from the Academy of Model Aeronautics Safety Code. For the complete Safety Code refer to *Model Aviation* magazine, the AMA web site or the Code that came with your AMA license.

### 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 and avoid flying in the proximity of full-scale aircraft. Where necessary, an observer shall be utilized 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.

5) I will not fly my model unless it is identified with my name and address or AMA number, on or in the model. Note: This does not apply to models while being flown indoors.

7) 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 flyer, unless assisted by an experienced helper.

3) At all flying sites a straight or curved line(s) must be established in front of which all flying takes place with the other side for spectators. Only personnel involved with flying the aircraft are allowed at or in the front of the flight line. Intentional flying behind the flight line is prohibited.

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

5) **I will not knowingly operate my model within three miles of any pre-existing flying site except in accordance with the frequency sharing agreement listed** [in the complete AMA Safety Code].

9) Under no circumstances may a pilot or other person touch a powered model in flight; **nor should any part of the model other than the landing gear, intentionally touch the ground, except while landing.**

## CHECK LIST

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 check list 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 off as they are completed.

- 1. Check the C.G. according to the measurements provided in the manual.
- 2. Be certain the battery and receiver are securely mounted in the fuse. Simply stuffing them into place with foam rubber is not sufficient.
- 3. 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.
- 4. Balance your model *laterally* as explained in the instructions.

- 5. Use threadlocking compound to secure critical fasteners such as quick connect pushrod connectors, etc.
- 6. Reinforce holes for wood screws with thin CA where appropriate (gearbox mounting screws, etc.).
- 7. Confirm that all controls operate in the correct direction and the throws are set up according to the manual.
- 8. Make sure that all servo arms are secured to the servos with the screws included with your radio.
- 9. Make sure any servo extension cords you may have used do not interfere with other systems (servo arms, pushrods, etc.).
- 10. Balance your propeller (and spare propellers).
- 11. Tighten the propeller nut and ensure the nose cone is securely attached.
- 12. Place your name, address, AMA number and telephone number on or inside your model.
- 13. Cycle your battery pack (if necessary) and make sure it is fully charged.
- 14. If you wish to photograph your model, do so before your first flight.
- 15. Range check your radio when you get to the flying field.

## FLYING

The Great Planes Hellcat is a great-flying model that flies smoothly and predictably. The Great Planes Hellcat does not, however, possess the self-recovery characteristics of a primary R/C trainer and should be flown only by experienced R/C pilots.

**CAUTION (THIS APPLIES TO ALL R/C AIRPLANES):** If, while flying, you notice an alarming or unusual sound such as a low-pitched “buzz,” this may indicate control surface *flutter*. Flutter occurs when a control surface (such as an aileron or elevator) or a flying surface (such as a wing or stab) rapidly vibrates up and down (thus causing the noise). In extreme cases, if not detected immediately, flutter can actually cause the control surface to detach or the flying surface to fail, thus causing loss of control followed by an impending crash. The best thing to do when flutter is detected is to slow the model **immediately** by reducing power, then land as soon as safely possible. Identify which surface fluttered (so the problem may be resolved) by checking all the servo grommets for deterioration or signs of vibration. Make certain all pushrod linkages are secure and free of play. If it fluttered once, under similar circumstances it will probably flutter again unless the problem is fixed. Some things which can cause flutter are; Excessive hinge gap; Not mounting control horns solidly; Poor fit of clevis pin in horn; Side-play of wire pushrods caused by large bends; Excessive free play in servo gears; Insecure servo mounting; and one of the most prevalent causes of flutter; Flying an over-powered model at excessive speeds.

## Hand Launch

For the first flight, it is a good idea to have an assistant launch the airplane for you. This allows you to keep your hands on the controls and correct any trim problems that become apparent. Have your assistant hold the bottom of the fuse just behind the wing. Throttle up to full power and have your assistant give the Hellcat a firm, but not hard, toss straight ahead. Apply a small amount of up elevator and gently climb out to a comfortable altitude. Be careful not to climb too fast as you will lose airspeed and the Hellcat may stall.

## 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 Great Planes Hellcat 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 remaining, 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 the Hellcat 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 battery power, but use this first flight to become familiar with your model before landing.

## Landing

Because this model is very lightweight, it does not retain energy well. Performing a nice, gentle, gliding landing may be difficult. Instead, we recommend landing the Hellcat under power. You will want to bring the Hellcat in at reduced throttle, modulating your descent using the throttle. When you are just above the deck, use a quick “blip” on the power to flare the Hellcat and rest it gently on its belly.

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.**