



Bristol

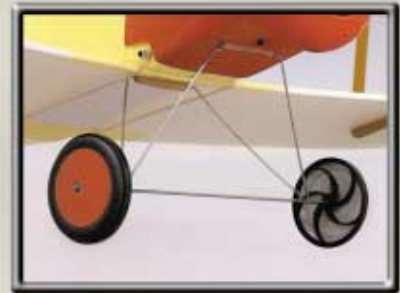
SCOUT

ALMOST READY TO FLY

ASSEMBLY MANUAL



KIT NO. SIGRC94ARF



SIG MANUFACTURING COMPANY, INC.



Assembly Instructions

One of the most attractive rotary engine single-seat airplanes of World War I was the elegant little Bristol Scout. Based on a pre-war racing design by Frank Barnwell, the diminutive Bristol Scout (22ft wingspan) was considered fast (97mph) and maneuverable when it was introduced in late 1914. The Scout was used by both the Royal Flying Corps and the Royal Naval Air Service.

The first version to enter service in the war was the Bristol Scout C. Initially unarmed, the Scout C became a test bed for various ways of mounting a machine gun to an airplane. Capt. Lanoe Hawker of RFC Sqn. 6 devised a method of mounting a Lewis gun to the fuselage side of his Scout C. The gun was angled outward at a 45° angle to clear the propeller arc. With his new gun, Hawker became the first pilot to be awarded the Victoria Cross for aerial combat when he attacked three German aircraft on July 25, 1915, destroying one and damaging the others. Adding to this, Hawker had downed another enemy airplane four days previously.

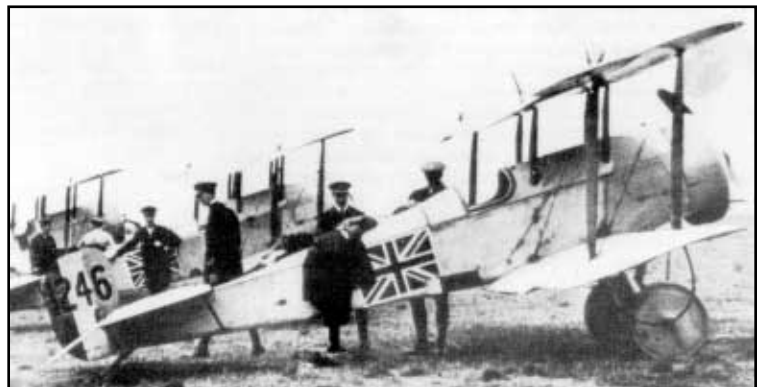
Other pilots mounted a Lewis gun on the top wing, high enough to fire over the propeller arc. Some RNAS pilots simply mounted a gun in front of the windscreen and fired through the revolving propeller without the benefit of an interrupter gear. If they were lucky enough to avoid shooting off their propeller, the holes in the blades would be plugged and taped over before the next flight. By March 1916, the newer Bristol Scout D became the first British fighter to be armed with a synchronised machine gun that could safely fire through the propeller arc. This configuration became the favorite mount of British ace Maj. James McCudden.

Soon outdated by more newer designs, the Bristol Scout was withdrawn from front line service in the summer of 1916 and relegated to use as a trainer. Ultimately 161 Scout Cs had been produced, and 210 Scout Ds. Only one Bristol Scout D, ser. #5570, survived the war, and it was owned by various civilian pilots until it was scrapped in 1930.

Your Sig Bristol Scout is a delightful reproduction of this classic biplane. Being a park flyer, your Bristol Scout is capable of being flown in small restricted areas. The rugged airframe is very light weight and will provide many enjoyable flights. Take your time and follow the assembly instructions carefully, and your Bristol Scout will take you on many rewarding flights.

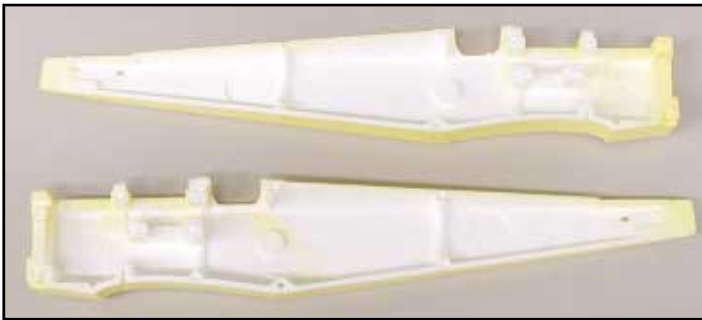
SIG BRISTOL SCOUT SPECIFICATIONS:

- Wingspan: 30.7"
- Wing Area: 301.5 sq."
- Length: 25.5"
- Weight: 10.8 - 11.2oz
- Wing Loading: 5.2 - 5.4oz/sq.'
- Power System: 180 Class with 4.4:1 Gear Box
- Propeller: E.M.I. 8.5" x 8" Propeller (215.9 x 203mm)
- Radio Requirements:
 - (1) 3 or more channel transmitter on "Aircraft" Frequency
 - (1) Micro Receiver
 - (1) Micro Servos
 - (1) 5amp Electronic Speed Control
- Battery: 6 cell, 720AAA mAh NiMh Square Pack
- Flying Time: 10 - 15 Minutes



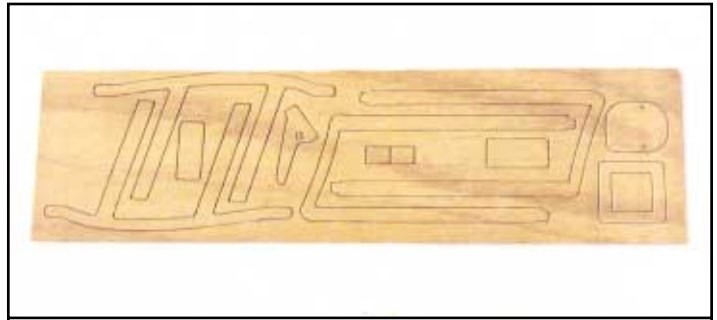
Bristol Scouts of the Royal Naval Air Service on the western front 1914.

Kit Contents: Do a complete inventory of your kit before starting assembly.



Bag #1: SIGRPFU294

- 1...Bristol Scout Left Fuselage Side
- 1...Bristol Scout Right Fuselage Side



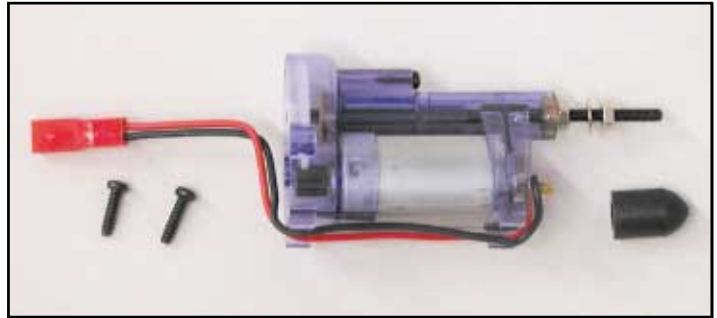
Bag #2: SIGRPWB294

- 1...Bristol Scout Wooden Parts Die-Cut Sheet



Bag #3 & Bag #4: SIGRPCW294

- 1...Bristol Scout Molded Plastic Left Cowl Half
- 1...Bristol Scout Molded Plastic Right Cowl Half
- 1...Bristol Scout Molded Plastic Nose Ring



Bag #4: SIGRPMGDU293

- 1...Sig180 Class Power System
- 2...#3 x 10mm Phillips-Head Sheet Metal Screws
- 1...Soft Rubber Prop Shaft Protector



Bag #5:

- 1...Bristol Scout Molded Plastic Hatch Cover **SIGRPHC294**
- 1...E.M.I. 8.5" x 8" Propeller **SIGRPPROP293**



Bag #6: SIGRPWH294

- 2...Bristol Scout 50mm Dia. Main Wheels
- 4...Wheel Retainers
- 2...Bristol Scout Molded Plastic Wheel Covers



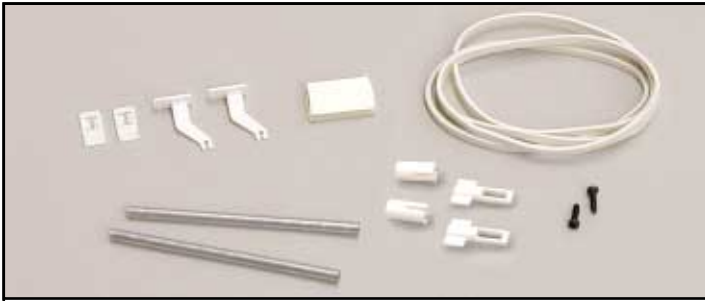
Bag #7:

SIGRPTF294

- 1...Bristol Scout Foam Horizontal Tail (Stabilizer & Elevator)
- 1...Bristol Scout Foam Vertical Tail (Rudder & Fin)

SIGRPWK294

- 1...Bristol Scout Top Wing
- 1...Bristol Scout Bottom Wing
- 2...Wing Reinforcing Tape



Bag #8:

- 4... Wing Attach Rubber Bands (#32)
- 2... #2 x 8mm Phillips-Head Sheet Metal Screws (cowl attach)
- 1... Velcro® Hatch attach strips
- 2... Molded Plastic Control Horn
- 2... Molded Plastic Control Horn Retainer
- 2... Molded Plastic Control Horn Clevis
- 2... Molded Plastic Control Horn Clevis Retainer
- 2... 4mm x 3-11/16" Aluminum Wing Tubes



Loose Packed in Box:

- 1... Bristol Scout Wire Main Landing Gear **SIGRPBM294**
- 2... Wire Pushrods with "Z" Bend at one end
- 1... Bristol Scout Decal Sheet **SIGDKM294**
- 1... Instruction Manual (not shown)

Additional Items Needed To Complete This Model

Tools and Supplies:

- Small Phillips Screw Driver
- Small Side Cutting Pliers
- Scissors
- Sig 5-Minute Epoxy
- Sig 30-Minute Epoxy
- Sig Thin C/A Glue
- Hobby Knife With #11 Blade
- 12" Ruler
- 1/16" Drill Bit
- 220 Grit Sandpaper
- Rubbing Alcohol
- 3/4" wide 3M Scotch® Crystal Clear Tape
- Needle Nose Pliers
- Small 90° Square
- Straight Pins
- 1" Paint Brush
- #32 Rubber Bands or Low Tack Drafting Tape

Radio Equipment:

Transmitter... We used a HiTEC 4-channel transmitter. Although the Sig Bristol Scout only needs three channels for operation, a four channel or more transmitter will work fine when used in conjunction with an ultra light receiver and servos, as explained below. We do not recommend that you buy a new 3-channel transmitter just for the Bristol Scout. If you need to buy a new transmitter, we recommend that you buy one with four or more channels, that will allow you to fly more advanced models in the future.

Airborne Radio Components... We used the HiTEC FEATHER PACK, which is a package offered by HiTECH of ultra light airborne components for small electric models like the Bristol Scout. Other radio companies may offer a similar package of light weight airborne components. The HiTEC FEATHER PACK includes a FEATHER-4 ULTRA LIGHTWEIGHT 4-CHANNEL RECEIVER, Two HS-55 FEATHER SERVOS and a MICRO SWITCH HARNESS. There are a number of other small receivers and servos on the market that can be substituted with equally good results. Select components that have specifications similar to the HiTEC equipment listed. Watch the weight of components carefully as using heavier than recommended equipment will have a detrimental effect on the flight performance of your Sig Bristol Scout.

Electronic Speed Control... We used a MAXX PRODUCTS MX-9104 MICRO ELECTRIC SPEED CONTROLLER. Other electronic speed controllers may be used as long as the have a minimum rating of 5 amps.

Batteries:

The transmitter can either have alkaline or rechargeable NiCad batteries. Use the batteries recommended by the manufacturer of the transmitter.

The airborne battery powers both the electric motor and the airborne radio components. The recommended battery is a 6-cell (AAA) 720 mAh NiMh (Nickel Metal Hydride) rechargeable pack. This pack is matched to the models power system and performance. When properly charged and with proper throttle management, this battery pack can provide flights in excess of 15 minutes.

Chargers:

If your transmitter has rechargeable batteries, use the charger that is supplied or recommended by the manufacturer. This is usually a slow charger (overnight). Although there will be some variation from transmitter to transmitter, the average fully charged transmitter battery will provide around two hours of operation.

The airborne battery charger is an extremely important piece of equipment and failure to select an acceptable charger or improper operation will cause performance problems and unsatisfactory results. A majority of performance related problems can be traced directly to improperly or incompletely charged batteries.

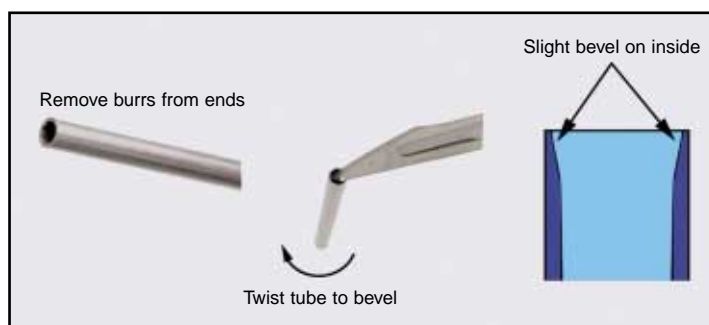
To charge the recommended battery pack you **MUST** have a charger that is capable of performing peak detection charging of NiMH (Nickel Metal Hydride) batteries. We used an Astro Flite 112D charger. This unit is capable of charging at different rates and uses a 12 volt power supply such as a car battery. Other chargers can be used as long as they have capabilities similar to the Astro 112D.

Before Beginning Assembly

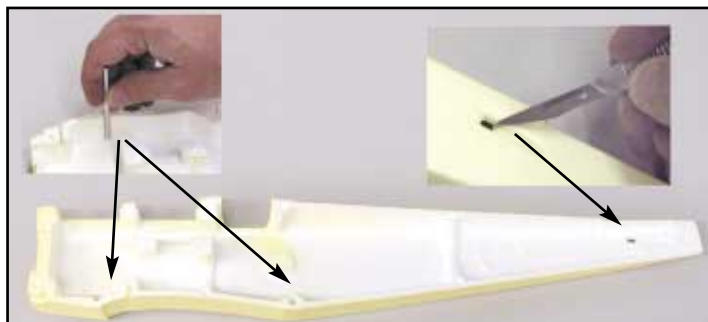
Take your time and follow the assembly instructions carefully. The foam parts of your Bristol Scout can be dented easily so be gentle. To help protect your model during assembly, cover your work bench with a towel or a piece of indoor/outdoor carpet. Use only the glues specified or you will damage the parts. Specifically, **DO NOT** use C/A Glue on any of the foam parts or they will be damaged.

Assembly Starts Here:

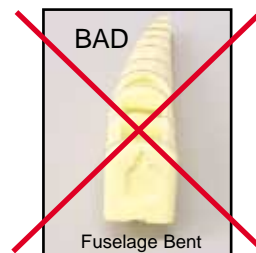
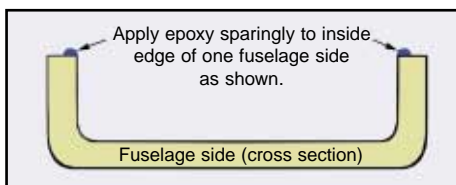
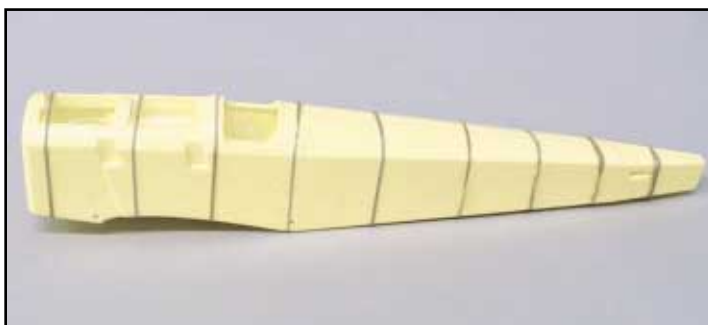
1...Use a small piece of 220 grit sandpaper to remove any burrs from the ends of the two 4mm x 3-11/16" Aluminum Wing Tubes. Now use your hobby knife to slightly bevel/sharpen the inside of one end of one tube as shown.



2...Prepare the fuselage sides for assembly by using the sharpened end of the aluminum tube to open up the four holes in the fuselage sides. Lay the fuselage side flat on a firm surface and gently press the tube into the hole with a twisting motion to finish cutting through the fuselage sides. Next, use your Hobby Knife to open up the pushrod holes in the rear of each fuselage side. Finally, lightly sand the mating surfaces of both sides to remove any flashing from the foam.



3...Carefully apply 30 minute epoxy to one of the fuselage sides as shown. Since the epoxy is many times stronger than the foam, you only need to use a small amount to bond the fuselage sides together. By applying the epoxy in this manner you will eliminate having a lot of epoxy squeezing out on the outside of the model. We recommend using #32 rubber bands to hold the fuselage sides together until the epoxy hardens. Use care to make sure that the fuselage is straight and not bent or twisted. **NOTE:** You can also use low-tack drafting tape to hold the fuselage sides together if preferred. However, use caution because tape can pull the paint off the model if the adhesive is too tacky. Use tape only on areas of the model that will not be seen after it is completely assembled.



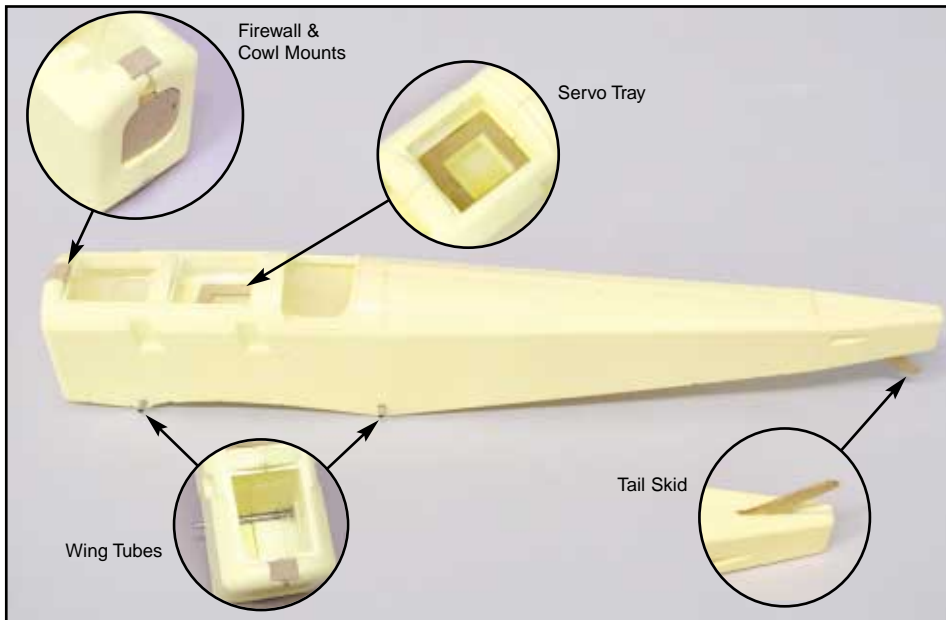
4...Use 5-minute epoxy to glue the plywood Firewall, (2) Cowl Mounts, Servo Tray, Tailskid, and aluminum Wing Tubes in place in the fuselage.

Be sure the firewall is seated snugly into the recess molded in the front of the fuselage. This provides built-in down and right thrust to the motor.

Glue the servo tray in with the grain running across the fuselage.

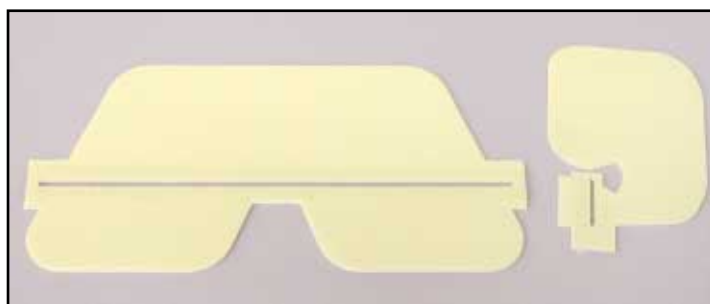
The wing tubes should stick out an equal amount on each side of the fuselage.

The tail skid should be positioned at the very front of the slot.



5...Use 3/4" wide 3M Scotch® Crystal Clear Tape to hinge the tail surfaces. Apply a strip of tape to the top of the Horizontal Tail and another strip on the bottom. Each tape strip should be centered over the slot between the parts and should run the full length of the slot. Do the same to both sides of the Vertical Tail.

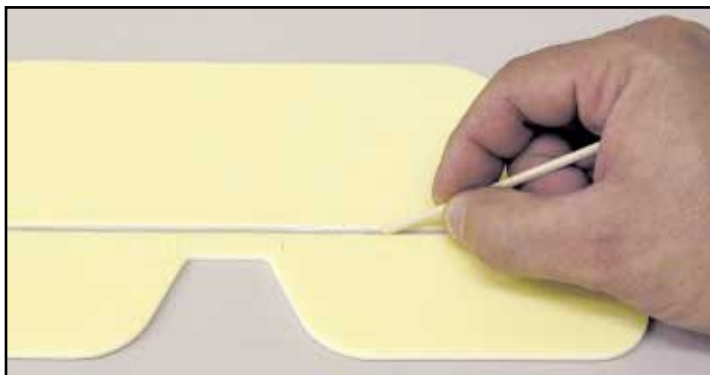
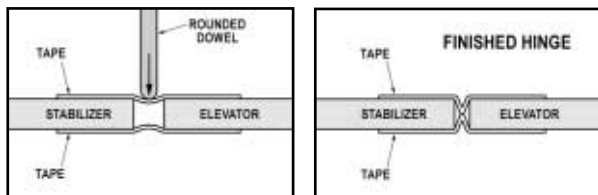
NOTE: 3/4" wide tape is available at most office supply stores. Use only clear transparent tape. Do not use frosted Scotch® Magic Tape.



6...Use a sharp new hobby knife to trim the foam tabs and excess tape from both ends of the horizontal tail and the top and bottom of the rudder tab.



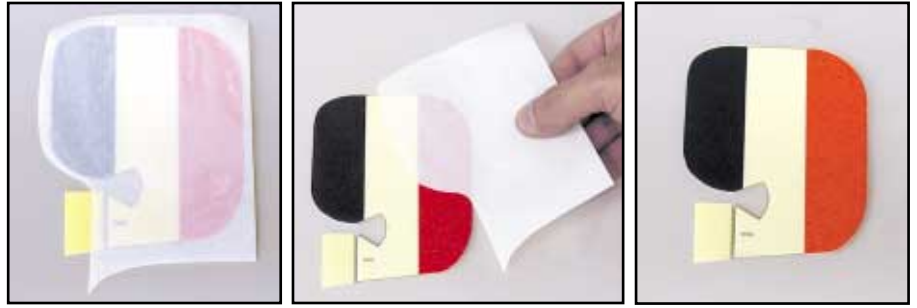
7...Use a small diameter dowel with a smooth rounded end, or similar shaped object, to indent the tape on each side of the tail surface until the two pieces of tape contact each other in the middle of the hinge gap, creating the finished hinge.



8...Apply the rudder decals to both sides of the rudder.

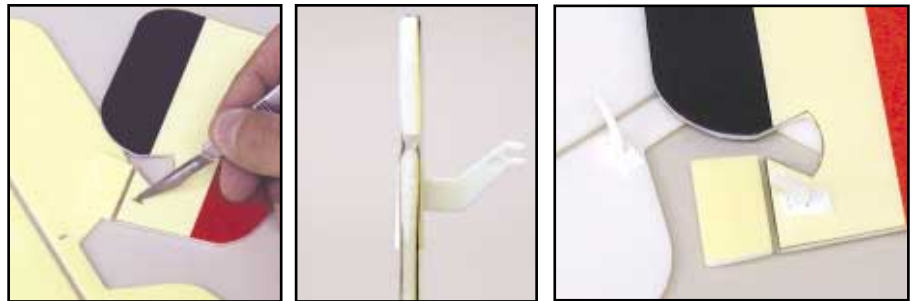
DECAL APPLICATION NOTES: The decals provided in this kit are a type of water transfer decal that you may not have used before. They are extremely thin and light, and when they are on the model they look like they're painted on. Notice that the decals are printed on the paper carrier upside down. There is a thin clear plastic sheet over the decals that protects a low tack adhesive.

To apply the decals, leave the clear plastic in position while you cut the individual marking from the main sheet. Then remove the clear plastic and place the decal on the model in the desired position, adhesive side down. Make sure you get the decal exactly where you want it. The light tack adhesive allows the decal to be picked up and repositioned if necessary. With the decal in the proper position, use a brush to generously

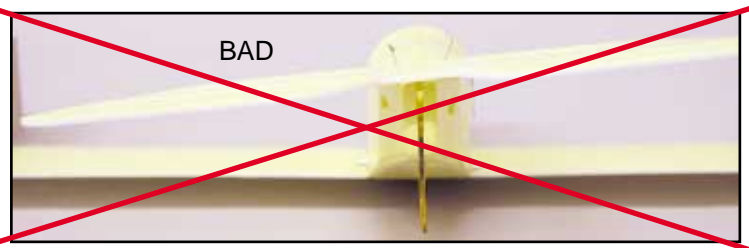
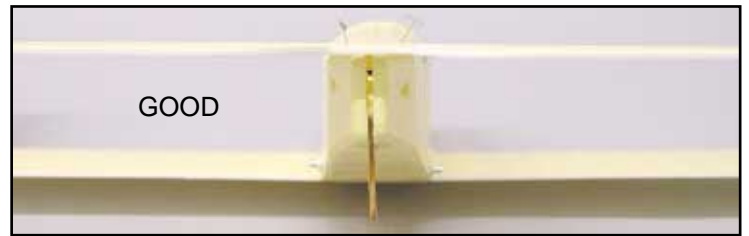


apply cold tap water to the paper. The paper will immediately begin to soak up the water. Let the paper soak for at least 30 seconds, and then carefully SLIDE the paper from the top of the decal. DO NOT try to lift the paper from the decal as it will damage the decal. Also, after the paper is removed DO NOT try to move the decal on the model surface. The decal is very thin and fragile. If the decal has air bubbles under it, use a soft cloth to pat out the bubbles, making sure that you pat straight up and down, not sideways. DO NOT try to push the bubbles sideways out from under the decal. While these decals are more fragile than “normal” decals, the end result is a marking that looks like it was painted on. Allow the decal to dry at least one hour before handling.

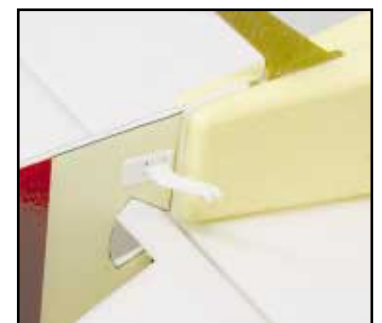
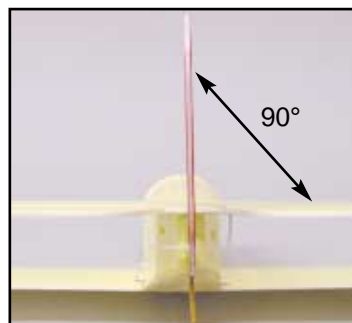
9...Use your hobby knife to open the control horn slots in the rudder & elevators. Insert the rudder control horn so that the arm sticks out of the left side of the rudder. Insert the elevator horn from the top so that the horn sticks down from the bottom. Now slide the retainer plates onto the horns and press into position to lock the control horn in place. You will hear or feel two clicks when the retainer is in the proper position.



10... Attach the lower wing to the fuselage with two rubber bands. Use 5 minute epoxy to glue the horizontal stabilizer to the fuselage. The stabilizer should be roughly parallel to the wing and should not tilt to the left or right. Use several straight pins to hold the stabilizer in position until the epoxy sets. Any excess epoxy that enters the fin slot in the stabilizer and fuselage must be cleaned out before it dries.



11...Use 5 minute epoxy to glue the vertical stabilizer to the fuselage. The tab on the front of the vertical stabilizer is inserted completely into the slot in the aft end of the fuselage and should be 90° to the horizontal, and should not tilt to the left or right. Use several straight pins to hold the vertical stabilizer in position until the epoxy sets.



12...Plug the airborne electronics together and test for proper function. The two servos are plugged into channels 1 and 2 on the receiver. The electronic speed control plugs into channel 3 on the receiver. Plug the motor, without the prop in place, into the output of the electronic speed control. Fully charge the transmitter and airborne battery.

To operate the system, first turn the transmitter on and place the throttle stick in the low position. Now plug the airborne battery into the input side of the electronic speed control and the system is operational (see NOTICE: below). Test the system by moving the right stick on the transmitter, which should move the rudder and elevator servos.

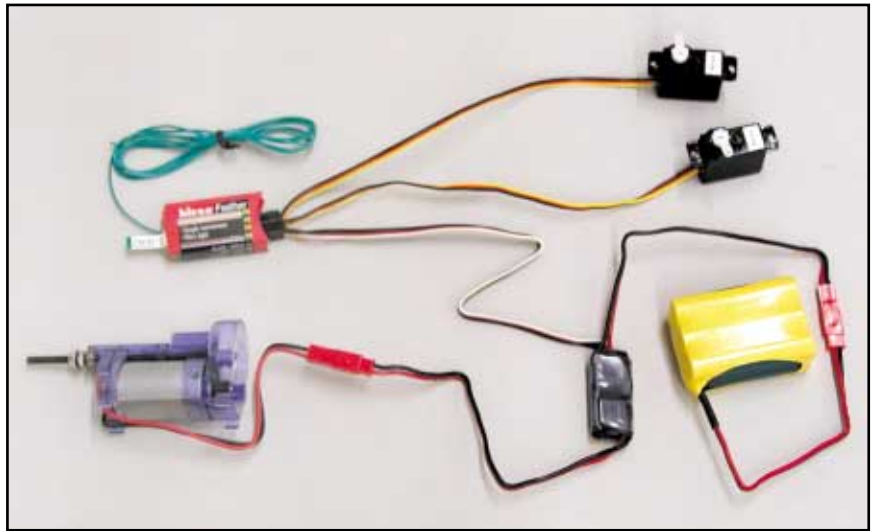
Initially, the motor is not armed and will not function when you move the throttle stick. To arm the motor you must move the throttle stick to the high position and hold it there for several seconds. Then move the throttle stick to the low position and hold it there for several seconds. The motor is now armed. Moving the throttle stick now will activate the motor. Make

sure everything is functioning properly on your workbench BEFORE you install any of the components into the model. While the radio is on make sure that the rudder & elevator trim levers on the transmitter are in the centered position. This will make sure that the servos are centered. Unplug the battery from the electronic speed control to turn the system off.

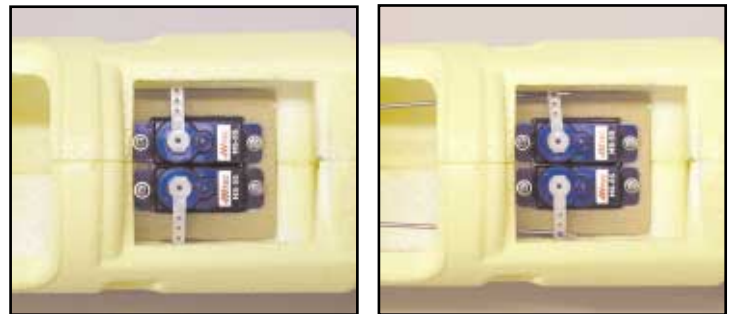
NOTICE: The HiTEC FEATHER PACK airborne package we used came with a small MICRO SWITCH HARNESS. We elected not to use the switch harness to save weight. It is easy to turn the radio system on and off simply by plugging in and unplugging the battery pack.

13...Install the servos into the plywood servo tray. The servo output arms should be at the back end of the servo. Use care to not move the servo output arms from their neutral position.

Feed the wire pushrods into the fuselage from the rear exits. The "Z" bends should be at the front and attached to the output arms. Tighten the servo arm screws.

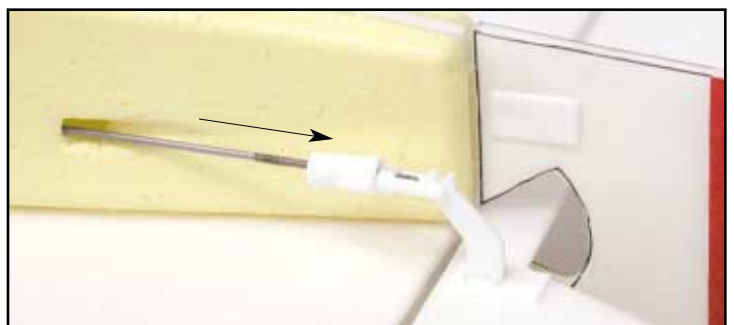
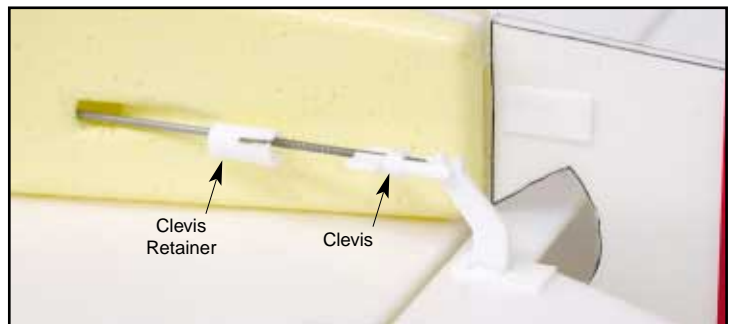


14...Slide the plastic Control Horn Clevis Retainer onto the rudder pushrod wire. Snap the plastic Control Horn Clevis into the rudder control horn. Then with the rudder servo in neutral position, hold the rudder in neutral while you lay the threaded end of the pushrod wire into the groove in the plastic clevis. Push the wire down firmly into the groove.



15...Slide the Clevis Retainer onto the Clevis, trapping the pushrod wire in place. Check to be sure that the rudder is still in the neutral position. If it is not, unsnap the clevis from the control horn and adjust the pushrod length by screwing the clevis in or out on the threads.

Now repeat this process to install the clevis onto the elevator pushrod.

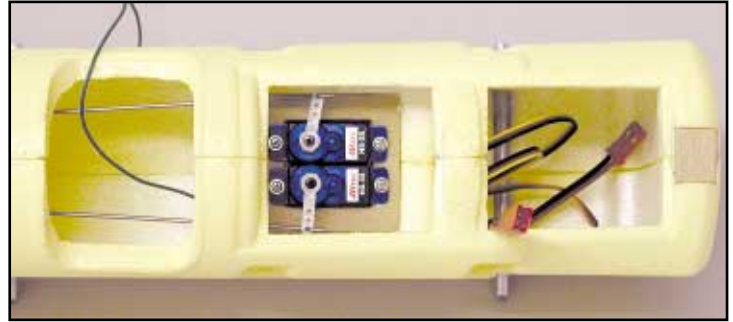


16...Finally, plug the servos and electronic speed control into the receiver. Place the receiver in the fuselage beneath the servos. The electronic speed controller sits on the bottom of the fuselage in the battery compartment, between the servos and the firewall. Plug the battery into the system and check the radio for proper operation. If the servos move in the wrong direction, use the servo reversing switches on your transmitter to change the direction of travel.

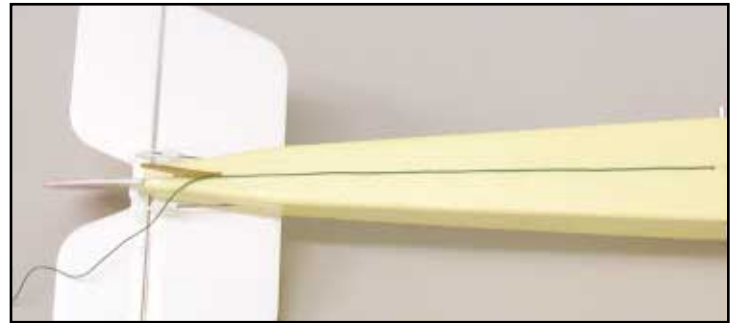
Adjust the control throws to the following measurements:

Rudder: 3/4" Right 3/4" Left

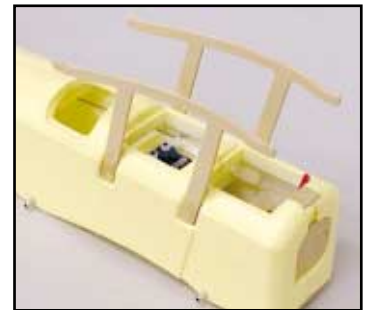
Elevator: 1/2" Up 1/2" Down



17...Drill a 1/16" hole in the bottom of the fuselage at the location shown. Feed the receiver antenna through this hole. Pull the antenna back to the rear of the fuselage and hold it in place just in front of the tail skid with a piece of Scotch® Tape. Allow the full length of the antenna to trail behind the model. Do not cut the antenna to shorten it, as that will reduce the reception range of your radio.

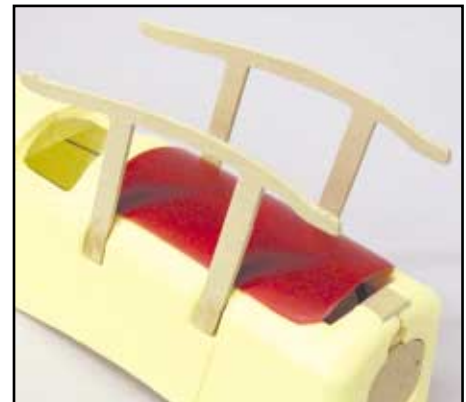
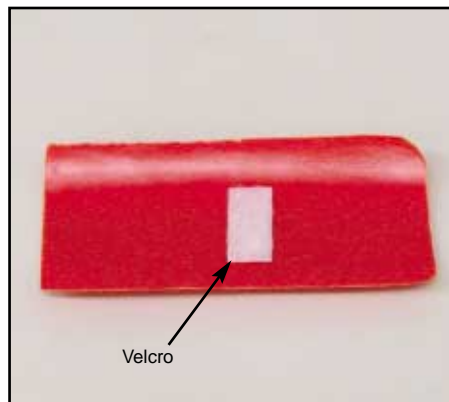
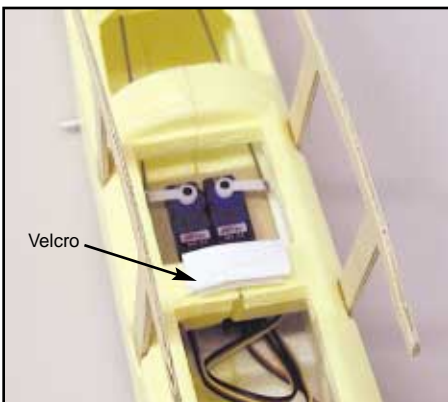


18...Remove the cabane struts from the die cut plywood sheet and glue them to the fuselage sides using 5 minute epoxy. They should sit on the ledges on the bottom of the pockets on the side of the fuselage. When viewed from the front the cabane struts should be vertical and should not lean to one side or the other.

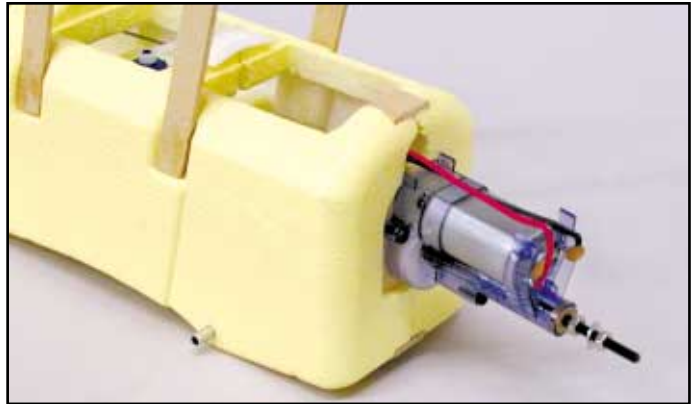


19...Trim the plastic Hatch Cover as shown. Test fit the Hatch Cover to the fuselage and adjust as required to achieve a proper fit. Note: A sharp hobby knife and miniature snips are the best tools for trimming the part.

Remove the paper from the adhesive on one side of the velcro squares and apply the two velcro squares to the top of the fuselage as shown. Now remove the paper from the adhesive on the top of the velcro and press the plastic Hatch cover into position to attach the velcro to the cover.



20...Pre-drill the two motor mount holes in the firewall with a 1/16" drill bit. Use the two #3 x 10mm Phillips-Head Sheet Metal Screws to attach the motor to the front of the model. Feed the motor connector through the hole in the front of the fuselage and connect it to the electronic speed controller.



21...Trim and assemble the molded plastic Cowl as follows:

A. Trim the round plastic front from the cowl as shown.



B. Trim the plastic from the back of the cowl and remove the landing gear slot.



C. Trim the plastic from the hatch opening. Trim the flanges along the top and bottom of the cowl to 1/6" wide.



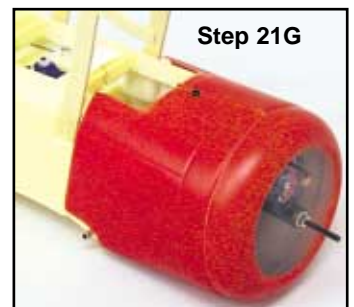
D. Tape the left and right cowl halves together. Carefully align the edges and be sure that they make full contact and glue the cowl halves together.



E. Trim the flange from the base of the nose bowl and remove the plastic from the front opening.



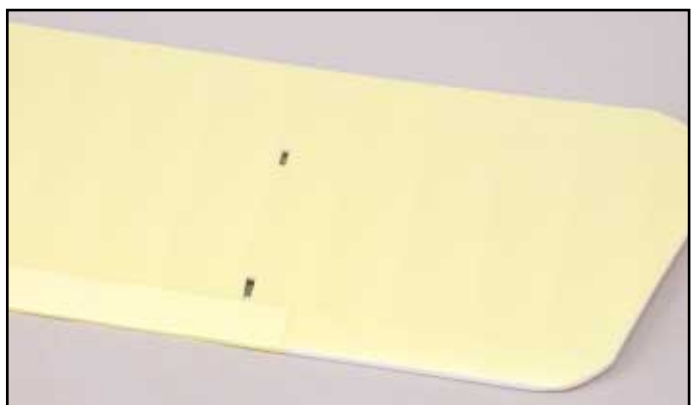
F. Glue the nose bowl to the front of the cowl halves..



G. Fit the cowl onto the model. Use a 1/32" bit to drill two mounting holes through the cowl and into the plywood cowl mounts. Mount the cowl to the model using the two #2 x 8mm Phillips-Head Sheet Metal Screws to attach the cowl to the model.

22...Apply the Wing Reinforcing Tape (14mm x 43mm) to the leading edges of both the top and bottom wings. The tape should be centered left-to-right on the leading edge, and it should be applied so that it wraps around the leading edge with half on the top of the wing and half on the bottom of the wing.

23...Apply the two star decals to the top of the top wing and allow to dry.



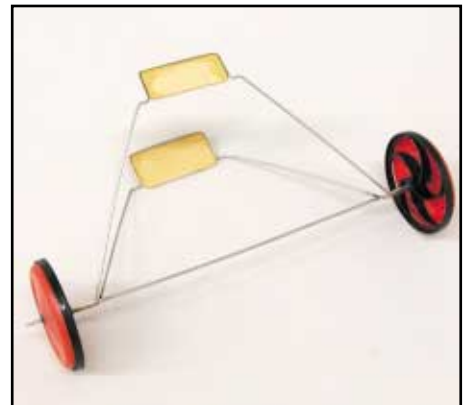
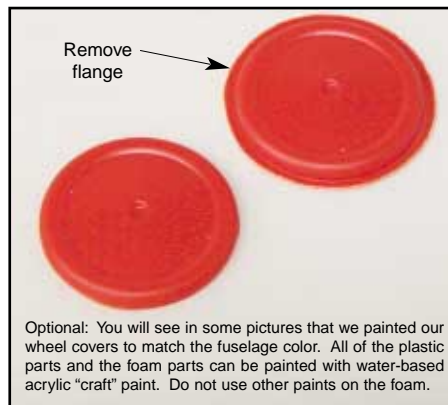
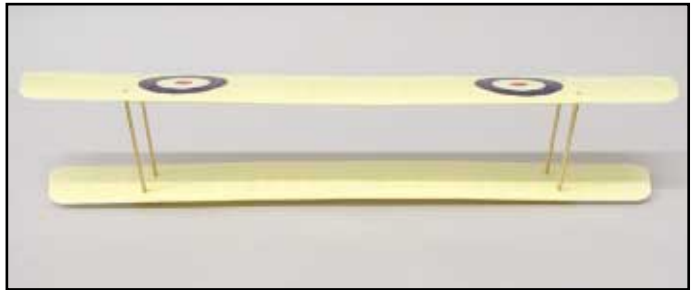
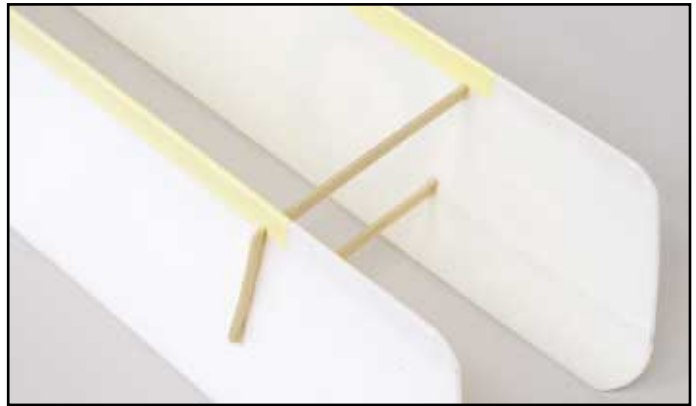
24...Remove the two plywood wing struts from the die-cut sheet. Insert the struts through the bottom wing. Use 5-minute epoxy to attach the struts to the bottom wing. Make sure the struts are aligned vertically before the glue sets.

Now glue the top stubs of the wing struts into the top wing with 5-minute epoxy. Align the wings square and allow the epoxy to dry.

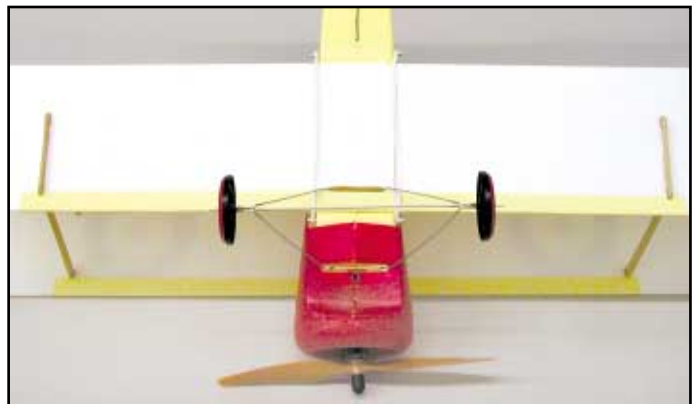
25...Use 5-minute epoxy to glue the two die-cut plywood landing gear inserts into position on the Wire Main Landing Gear. The short plywood insert goes at the front of the landing gear, and the taller one goes at the rear.

Trim the flange off of the two Molded Plastic Wheel Covers as shown. Use a 1/16" bit to drill a hole for the axle in the center of each wheel cover.

Press one Wheel Retainer onto each axle, and slide it all of the way in as far as possible. Now slide on the wheel, plastic wheel cover. Then install the outer Wheel Retainer. Make sure the wheels turn freely.



26...Attach the wings on the model using 4 rubber bands (2 for the top wing and 2 for the bottom wing). We recommend putting the bottom wing rubber bands on first, being careful to line up the slots in the bottom wing with the slots in the bottom of the fuselage. Then install the landing gear by pressing the front and rear upper ends completely into the slots in the bottom of the fuselage. Finally, install the top wing rubber bands.



27...Apply the number and flag decals to the fuselage sides.



Flying Your Bristol Scout

28...Charge the airborne battery pack and connect it to the system. Test the radio and electric motor system WITHOUT THE PROPELLER ATTACHED. Make sure that all of the controls and the throttle function properly.

29...When everything checks out, securely attach the propeller to the motor. Don't forget to install the soft rubber prop shaft protector!

30...BALANCING YOUR AIRPLANE IS IMPORTANT!

Place the battery in the model and install the plastic hatch cover. Check the balance of the model by turning it upside down and supporting it on your finger tips placed 1/2" back from the leading edge of the bottom wing. Hold your fingers close to the fuselage sides. Supported this way your model should hang perfectly level. If the model hangs tail low, you must move the receiver and battery forward in the fuselage, or if they are already as far forward as possible, add weight to the nose of the model until it hangs level. If the model hangs nose low, you must move the receiver and battery towards the rear, or add weight to the tail of the model until it hangs level.

31...Always pre-flight your model thoroughly before each flight. It is your responsibility to verify that your model is airworthy. Always follow established safety guidelines while installing the battery, operating the motor, radio, and while flying the model.



FLY SAFELY!

WARNING! THIS IS NOT A TOY!

Flying machines of any form are not toys! Because of the speeds that airplanes must achieve in order to fly, they are capable of causing serious bodily harm and property damage if they crash. IT IS YOUR RESPONSIBILITY AND YOURS ALONE to assemble this model airplane correctly according to the plans and instructions, to ground test the finished model before each flight to make sure it is completely airworthy, and to always fly your model in a safe location and in a safe manner. The first test flights should only be made by an experienced R/C flyer, familiar with high performance R/C aircraft.

JOIN THE AMA

The governing body for radio-control model airplanes in the United States is the ACADEMY OF MODEL AERONAUTICS, commonly called the AMA. The AMA SAFETY CODE provides guidelines for the safe operation of R/C model airplanes. While AMA membership is not necessarily mandatory, it is required by most R/C flying clubs in the U.S. and provides you with important liability insurance in case your R/C model should ever cause serious property damage or personal injury to someone else. For more information, contact:

ACADEMY OF MODEL AERONAUTICS
5161 East Memorial Drive
Muncie, IN 47302

Telephone: (765) 287-1256

AMA WEB SITE: www.modelaircraft.org

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Montezuma, IA 50171-0520

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LIMIT OF LIABILITY

The craftsmanship, attention to detail and actions of the builder/flyer of this model airplane kit will ultimately determine the airworthiness, flight performance and safety of the finished model. SIG MFG. CO.'s obligation shall be to replace those parts of the kit proven to be defective or missing. The user shall determine the suitability of the product for his or her intended use and shall assume all risk and liability in connection therewith.

KIT CONTENTS SUBJECT TO CHANGE WITHOUT NOTICE.