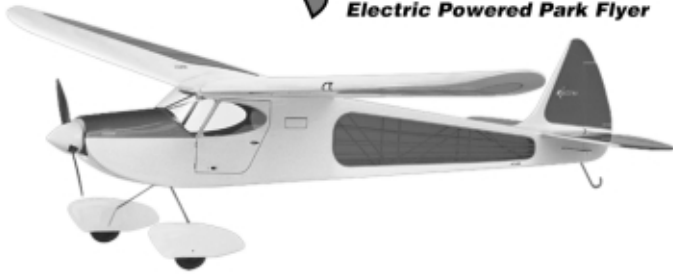




# Lil' RASCAL

ALMOST READY TO FLY  
Electric Powered Park Flyer



## LIL' RASCAL ARF ASSEMBLY MANUAL

### INTRODUCTION:

Congratulations on your purchase of the SIG Lil' Rascal ARF kit! The SIG Rascal series have become popular with modelers because their classic looks and good flying characteristics. SIG is pleased to now offer this same fine design in this unique 180 class size. The Lil' Rascal ARF not only retains the great characteristics of the original but is also small enough to take almost anywhere, completely assembled and ready to fly! Unlike most other small electric powered models, the Lil' Rascal has a really nice power-to-weight ratio, allowing it to handle much higher wind conditions. Your Lil' Rascal ARF has been expertly covered with Oracover®. This covering material is tough and light weight and is easily repairable. This kit has been specifically engineered to make assembly fast and simple when following the detailed instructions in this manual.

The Lil' Rascal ARF is very light and therefore well matched to the included electric 180 class motor and geardrive unit. This power system swings the supplied 6 x 4 prop with amazing power and efficiency. There are quite a few micro electronic speed controllers (ESC) that will work well in this model, in the 4-10 Amp range. The ESC unit shown in this manual is the MAXX Products MX-9104 ESC. This is a very small, light weight 4 Amp unit that handles 5-7 cell battery packs and includes a battery elimination circuit (BEC), doing away with the need for a separate receiver battery. This unit is available from MAXX Products, already pre-wired with the appropriate JST connectors.

To maximize the performance of the motor/geardrive unit used in this model, we suggest using a 7-cell 300 mAh Ni-MH (2/3 AAA size) battery pack, in a "folded" configuration. Properly charged, this pack delivers excellent power and great duration for the Lil' Rascal model. To derive the maximum capacity and performance from your battery pack, it is essential to use the correct battery charger. We use and highly recommend a charger that is designed for charging NiMH cells, such as the Astro Flight #115D unit. This charger is an AC/DC type, allowing you to charge packs either at home or from your car's 12-volt battery at the field. It is also a "Peak Delta" charger, assuring a maximum battery pack charge every time. Using this charger, at a 1 Amp charge rate, our packs take about 15 minutes to fully charge. Having at least two battery packs will allow you to fly almost continuously.

The assembly and flying of this model will only be successful if you

follow these instructions carefully. Deviating from these instructions has the potential to cause problems later in the assembly process or during flight. The successful assembly and flying of this model is *your* responsibility so take your time and enjoy your Lil' Rascal.

### RADIO EQUIPMENT:

The Lil' Rascal ARF gets its performance from many factors, such as its light weight and generous wing area. These combine to produce a very favorable wing loading, allowing the model to take advantage of the 180 motor/geardrive unit. Since this model is factory built and covered, you can only realistically control the finished, ready-to-fly weight by choosing the most appropriate radio equipment for a model of this size. In short, the performance of the Lil' Rascal will be reflected in the equipment that you choose.

In flight tests of the Lil' Rascal, we used the Hitec™ #HS-55 servos. However, any brand of servo that is in the same size and torque range as the HS-55 servo will work just fine. For example, one of our test models used the MAXX Products MX-50 units and they performed perfectly. In general, the servo torque properties for the Lil' Rascal ARF model should be in the 9 – 14 in./oz. area.

Only small or "micro" receivers should be used in this model due to weight and size constraints. We prefer to use dual conversion receivers, such as the Hitec™ Electron 6, the FMA M5, etc. Single conversion receivers can also be used as long as you are aware of the potential for interference from other transmitters. When we used the Hitec™ Electron 6 receiver, we carefully removed the plastic case, thus saving another 7 grams (about 1/4 oz.) in weight.

As mentioned earlier, you will also need a 4-10 Amp electronic speed controller (ESC) to control the throttle function. Your ESC should be pre-wired with JST connectors in order to connect properly with the motor connector.

In general, choose your airborne radio equipment carefully. As with any airplane, especially electric powered models, excess weight is to be avoided. Maximum performance can *only* be achieved with light weight components.

### COVERING MATERIAL:

Your Lil' Rascal ARF has been covered using Oracover®. This material is world famous for its ease in application, light weight, and consistent color. If you live in a dry climate, you may notice some wrinkles develop in the covering after you remove the covered parts from their plastic bags. This is perfectly normal in low humidity. The model was covered in a part of the world where the relative humidity is high and some of this moisture is retained in the balsa wood. When the covered parts are exposed to drier humidity conditions, the retained moisture will evaporate causing



the wood to dimensionally “shrink” in the process. In turn, this may cause some relaxing of the covering. However, this is easily taken care of using a small heat iron, such as a small “trim seal” type unit.

When using a larger iron, we suggest using a “sock” of thin cloth over the shoe to avoid scratches. The iron should be set to about 280° - 300° F. Use the heated iron over the wrinkle to lightly shrink the material – **do not** press on it. Then lightly iron it back down to the wood. The use of a heat gun is not recommended since the parts are really too small. Avoid contact with the plastic windows and windshield because the heat will distort the plastic.

Over-heating the covering seams may cause them to shrink too much and possibly expose the wood beneath. For this reason, we don't suggest using a heat gun. A typical hobby type covering iron will work just fine on a model of this size. A small “trim seal” iron is perfect for controlling the heat applied to a specific area. Using such an iron also minimizes the possibility of warping the thin parts.

For part number reference, your Lil' Rascal is covered in Oracover® film with the following part numbers: #10 White, and #21-29 Transparent Red, or #21-59 Transparent Blue.

**REQUIRED TOOLS:**

For proper assembly, we suggest you have the following tools and materials available:

- A selection of glues - SIG Thin and Thick CA and SIG Kwik-Set 5-Minute Epoxy
- CA applicator tips - fine
- Screwdriver Assortment
- Pliers - Needle Nose and Flat Nose
- Wire Cutters
- Pin Vise for small diameter drill bits
- Small T-pins
- Sandpaper
- Hobby Knife with sharp #11 blades
- Paper Towels
- Small Weights

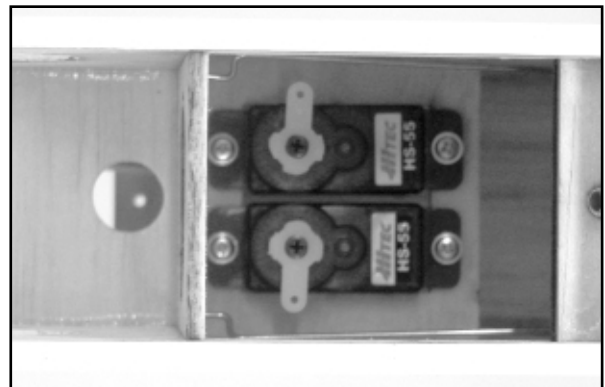


**FUSELAGE:**

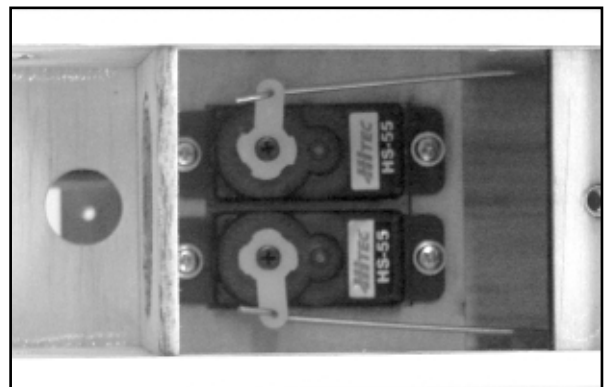
The fuselage is essentially complete with the wire rudder and elevator pushrods already in place. All that is required is the installation of the rudder and elevator servos and connecting the servo output arms to the “Z” bends on the pushrods. For this step you will need the two required servos and the mounting screws that came with them. Remove the servo output arm retaining screws and the output arms from the two servos.

The rudder and elevator servos are now installed into the fuselage, from the top. First remove the battery hatch from the bottom of the fuselage. Position the servos in place into the servo tray. Drill small pilot holes for each servo screw using a pin vise and small drill bit - we used a .040” (#60) drill bit for these pilot holes. Use a small Phillips screwdriver to install the servo mounting screws all the way. Now remove the screws and the two servos. Apply a single drop of **Thin CA** glue to each screw hole and allow the glue to set. Re-install the servos and their mounting screws into the servo tray. From the bottom battery tray opening, route the two servo leads out of the servo compartment and up through the rear hole in the receiver mounting tray.

Test fit the two servo output arms onto each servo, positioned at 90° to the servo body. If these arms interfere with each other, trim them accordingly.

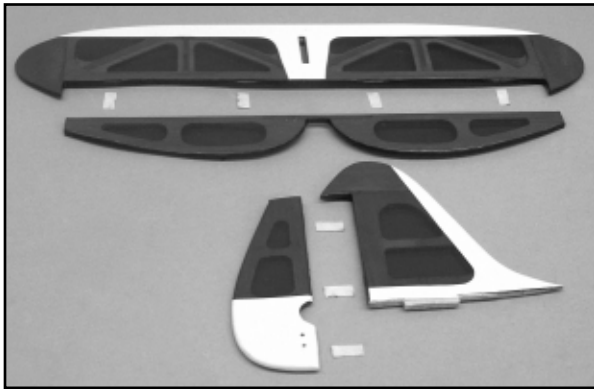


Remove the servo arms. Attach the wire elevator and rudder pushrods to the ends of each output arm. Place the arms back onto the servo output shafts and re-install the output arm screws - do not tighten these yet because they may have to be repositioned when the radio system is tested and centered.

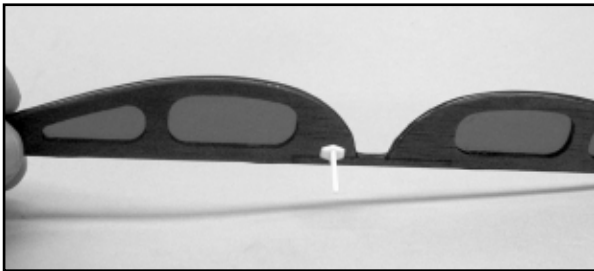


**MOUNTING THE TAIL GROUP:**

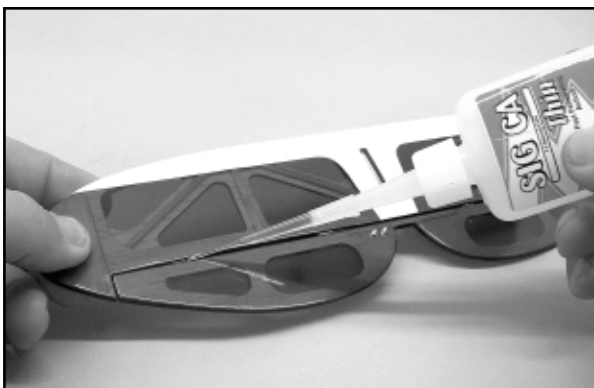
- 1) From the kit contents locate the horizontal stabilizer and elevator and the vertical fin and rudder. Also locate the two white plastic control horns. **NOTE:** As received, the elevator and rudder are only temporarily attached to the stabilizer and fin with unglued CA hinges in the pre-cut slots. Remove the elevators from the stabilizer and the rudder from the fin. Also remove the hinges from them.



□ 2) Before hinging the elevators to the stabilizer, glue the white plastic elevator control horn in place, using **Thick CA** glue. Apply a small amount of glue to the two “spikes” on the base of the horn and a small amount of glue to the base itself. With the three small holes in the control horn facing forward, firmly press the horn into the two pre-drilled holes at the leading edge of the elevator assembly, until the base bottoms out on the elevator surface. If any glue oozes out onto the covering, it can be quickly removed with SIG CA Debonder.



□ 3) The elevator assembly is now hinged to the horizontal stabilizer. Insert the four (4) CA hinges half way into the pre-cut hinge slots in the leading edge of the elevators. Once the hinges are in place, use a small T-pin through the center of each hinge to keep them from being pushed back any further into the elevators. Insert the exposed ends of the hinges into the pre-cut slots in the horizontal stabilizer - **NOTE:** Properly in place, the elevator horn will be on the left side of the stabilizer. Move the elevator assembly left or right as needed to center it with the horizontal stabilizer. Use a piece of tape to hold the elevators in the full “down” position. Remove the pin from one of the hinges and use **Thin CA** glue, with a fine applicator tip, to apply 2-3 drops to the exposed center of the hinge. Remove the pin from the next hinge and again, apply 2-3 drops of glue to the exposed center of the hinge. Repeat this process with the remaining two hinges. Remove the tape holding the elevator in the down position, allowing it to center itself with the stabilizer. Turn the stabilizer over

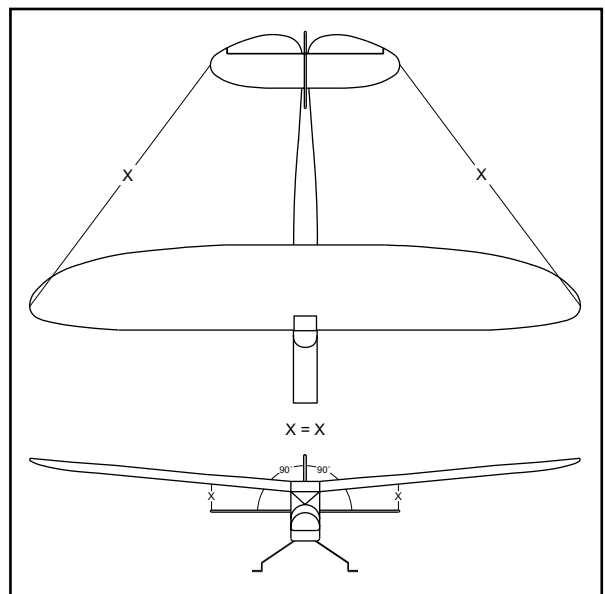
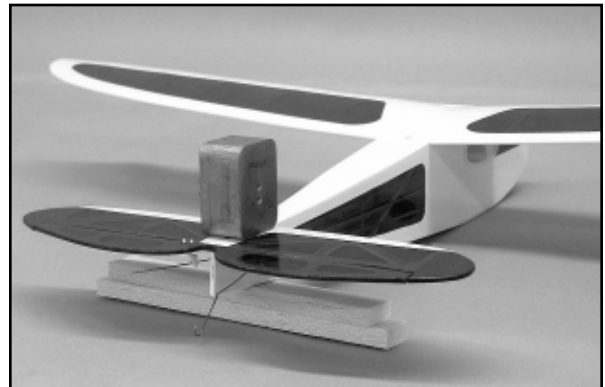


and again, use a piece of tape to pull and hold the elevators in the full “up” position. Apply 2-3 drops of glue to each exposed hinge center and remove the tape. Allow about 10 minutes for the glue to fully wick its way into the hinges.

After the glue has set, firmly flex the elevators full up and down to free their movement, removing any “stiffness” to their action.

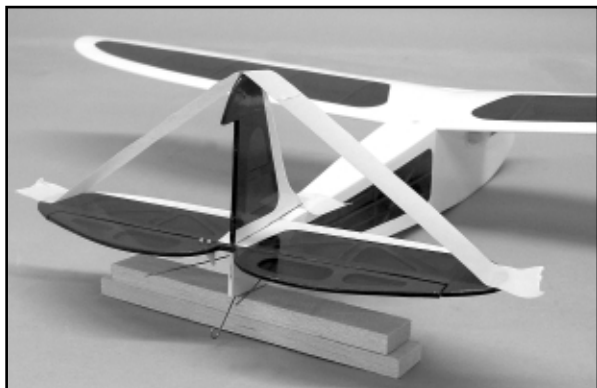
□ 4) The horizontal stabilizer/elevator assembly is now glued to the fuselage. To allow a little time to work and properly align the stabilizer, use SIG 5-Minute Epoxy for this step.

Begin by first mounting the wing to the fuselage using the provided 4-40 nylon bolt. Place the model onto a flat surface that lets you view it directly from the front. Prop-up the rear of the fuselage with scrap wood to allow the tail wire to clear the surface. Mix and apply a small amount of epoxy glue to the exposed wood on fuselage stabilizer saddle area. Carefully place the stabilizer on the fuselage saddle area, centering it as close as you can. Wipe off excess glue using alcohol and towel. Use a small weight to hold the stabilizer firmly to the fuselage. View the model from the front to see if the stabilizer is squarely in place in relationship to the wing/fuselage, without tilting to one side or the other. Make any adjustments needed to hold the stabilizer in this correct position. Now view the stabilizer from the top to make sure it is in place with its trailing edge square to the fuselage. Allow the epoxy to cure completely.



□ 5) The vertical fin - without the rudder hinged in place - is now glued to the top of the stabilizer, again using SIG 5-Minute epoxy. First, trial-fit the fin into the slot in the top of the stabilizer, without

any glue. If needed, trim the bottom fin tab to allow full contact of the fin base to the top of the stabilizer and the fuselage. Have the wing mounted to the fuselage and sitting on a flat surface to allow easy viewing from the front. Prop-up the rear of fuselage to clear tail wire. Mix and apply a small amount of glue to the bottom edge of the fin and the sides of the locating tab. Carefully press the fin into place. Wipe off any excess epoxy using alcohol and towel. Viewing the model from the front, make sure that the fin is 90° to the horizontal stabilizer. Viewing the model from the side, the trailing edge of the fin should line-up with the very rear of the fuselage. Use tape to hold the fin in place and let the glue set. After the glue sets remove the tape and the wing from the fuselage.

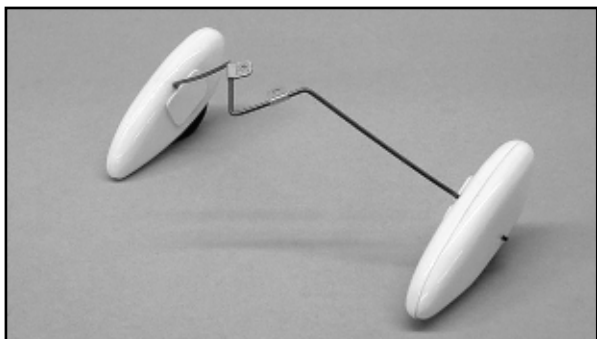


□ 6) Prepare the rudder for hinging by first installing the remaining white plastic control horn on its lower right side, in the two pre-drilled holes. Apply a small amount of **Thick CA** glue to the “spikes” on the horn’s base and a small amount of glue on the base itself. Press the horn firmly into the two holes until its base bottoms out on the surface of the rudder.

Using the three (3) remaining CA hinges, insert them half way into the rudder. As you did with the elevator hinges, use a T-pin through each hinge at the center. Insert the exposed hinge ends into the slots in the fin and fuselage. Make sure the rudder clears the fin at the top and aligns with the fuselage at the bottom. Use a piece of tape to hold the rudder in the full “right” position. Remove the pin from one of the hinges and use **Thin CA** glue to apply 2-3 drops at the exposed center of the hinge. Repeat this process with the remaining two hinges. Remove the tape holding the rudder, allowing it to return to its neutral position. Use a piece of tape to hold the rudder in the full “left” position and again apply 2-3 drops of glue to each exposed hinge center. Remove the tape and allow about 10 minutes for the glue to set. Firmly flex the hinged rudder back and forth until its movement is free and easy.

#### LANDING GEAR:

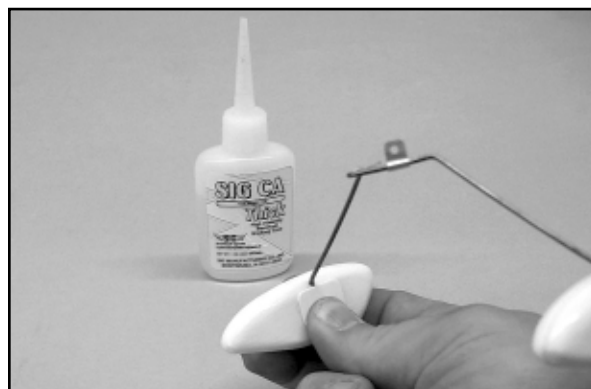
□ 1) Locate the 2 main wheels, 2 wheel pants – 1 left, 1 right, 2 plastic retaining pads, and the pre-bent wire landing gear.



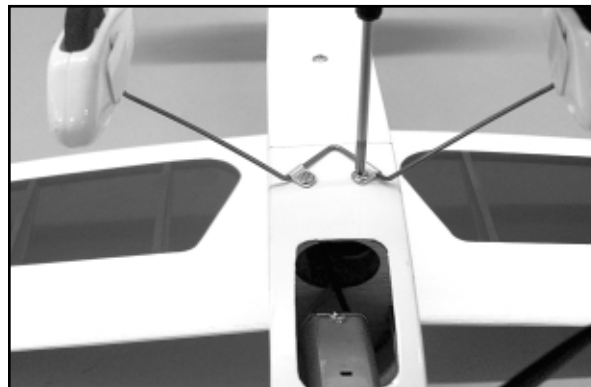
□ 2) Look at the landing gear and the wheel pants. Understand that when assembled, the wheel pants face forward while the V-bend shape at the top center of the landing gear wire points to the back of the fuselage.

□ 3) Insert the wire landing gear axle wire just into the hole in the plastic wheel pant, the side with the molded wire recess. Slip one of the wheels into the wheel pant and feed the wire axle through the wheel axle hole. Once the wire is through the wheel, you can feed it through the hole in the outer side of the wheel pant.

□ 4) Locate one of the square plastic retaining pads. Use sand paper to rough up one side. Apply a small amount of **Thick CA** glue to the roughened side of the pad and place it, centered over the wire landing gear, against the wheel pant surface. Hold in position until the CA sets. Repeat this process to finish the remaining wheel pant/wheel assembly.



□ 5) Attach the assembled landing gear to the fuselage bottom using the two M2 x 6MM screws supplied. Insert the screws through the metal brackets and into the two pre-drilled holes. Use a small Phillips screwdriver to secure the landing gear to the fuselage.

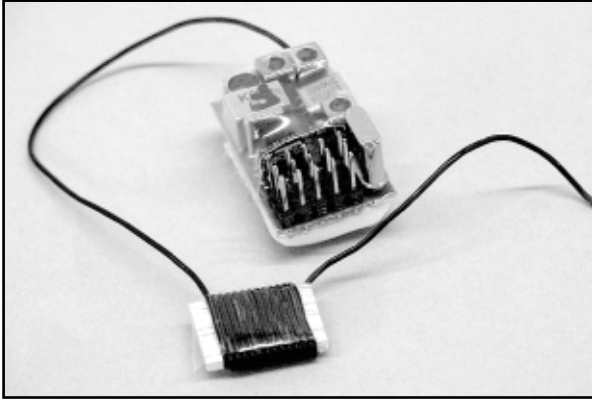


#### RADIO INSTALLATION:

For the following steps you will need your micro receiver, a micro 4-10 Amp ESC with the proper connectors, your charged transmitter, and a charged battery pack.

**MODELERS TIP:** A real problem with smaller R/C models is the typical length of the receiver antenna. These are often 30” to 36” long and therefore leave a great deal of their length hanging off the rear of a small model, such as the Lil’ Rascal. Because the antenna should *never* be cut, the only other way is to shorten its length using a “bobbin”. We have used this technique with our own Lil’ Rascal models with excellent results.

The “bobbin” itself is nothing more than a piece of 3/32” x 1/2” x 3/4” balsa wood. From the receiver, measure the antenna out to 4-1/2” – no closer. This is the point to start wrapping the antenna wire around the bobbin. Do not cross the wrapped antenna wire, simply lay it neatly next to each strand. Wrapping the antenna wire 12 to 14 times around this size bobbin, shortens its overall length by about 11”. Hold the now-wrapped antenna wire to the bobbin with a length of clear tape. Now when you install the receiver into the fuselage, you will have a much more reasonable length of antenna wire to work with at the rear.

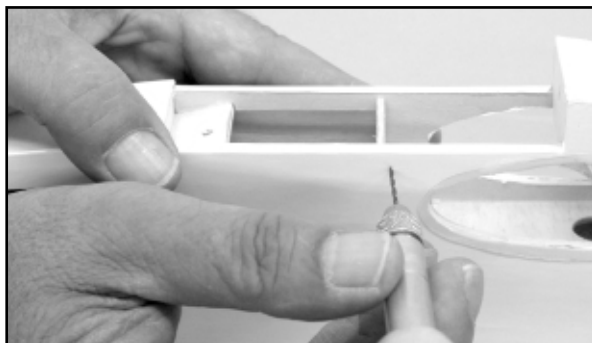


What will this procedure do to the range of your receiver? The answer is that you will lose some amount of range but not enough to effect the overall safe operation of the model. This is because a small R/C model is rarely flown to extreme distances for the simple reason that you can no longer see it. Since you would never do this, some loss of range is more than acceptable for a small model.

- 1) Mount the receiver to the built-in receiver tray in the fuselage, ahead of the servo compartment. The easiest and lightest way to mount the receiver is to use a 1” square piece of Velcro® tape. The receiver is mounted between the forward and rear wiring access holes in the receiver tray. Position the receiver with its servo connectors toward the rear of the fuselage cabin.

Earlier, you routed the rudder and elevator servo leads up through the rear hole in the receiver tray. Connect these two leads to the appropriate rudder and elevator positions in your receiver. The receiver antenna is routed down through the forward hole in the receiver tray, into the lower battery compartment. If you used an antenna bobbin as earlier described, use a piece of tape to hold it in place against the fuselage side and route the rest of its length back up through the rear hole in the receiver tray.

- 2) To route the antenna out of the fuselage, drill a small 3/64” dia. hole through the right fuselage side, just below the wing saddle and just in front of the fuselage former separating the servo

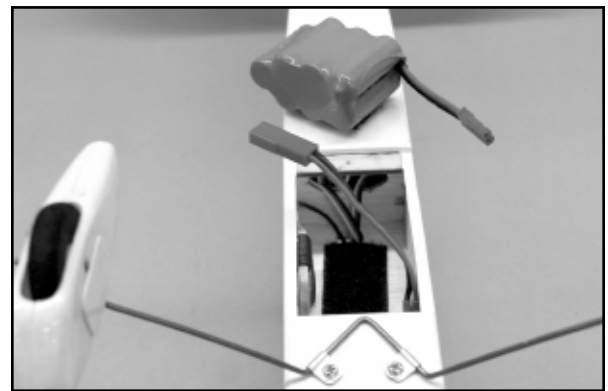


and receiver compartments. Pull the antenna through this hole.

To hold the antenna in place at the rear of the fuselage, use a pair of needle nose pliers to make a small hook, with a loop at one end - a piece of straight pin works great. Glue the hook to the rear of the fuselage, beneath the stabilizer, using a little thick CA. Use a small rubber band to attach the antenna to the wire hook to hold it tight.

- 3) The electronic speed controller (ESC) is connected to the motor using a JST connector and simply floats free in the nose of the fuselage. **DO NOT** wrap the ESC in foam, plastic, etc. It can get warm during operation and must be fully exposed to allow it to stay relatively cool. The receiver connector on the ESC is routed up through the front hole in the receiver tray and plugged into the receiver’s throttle position.

- 4) The battery pack is mounted to the bottom of the receiver tray, using the supplied Velcro® tape. This makes the battery pack easy to remove for charging between flights.



The airborne radio system can now be tested for proper operation – note that the propeller and spinner are **NOT** yet installed. Note that in the interest of minimizing weight and in consideration of the small amount of available space, this installation does not include an “on/off” switch. Turning the airborne radio system on or off is simply done by plugging the battery pack into and out of the ESC battery connector.

- a) Make sure your transmitter rudder and elevator trims are in neutral and that the throttle stick is in the full “low throttle” position. Turn on your transmitter.

- b) Make very sure of the correct polarity of the connectors and plug your charged battery pack into the correct battery connector on the ESC unit.

- c) You should now be able to move the rudder and elevator controls to check for the correct direction of their movement. You should now also be able to move the throttle stick toward the “high” position and the motor should run. **NOTE:** Some ESC units must first be “armed” by movement of the throttle stick – read the manufacturer’s directions for this information.

- d) With the system now working, you must check the rudder and elevator servos for correct movement. Use the servo-reversing feature on your radio system, if needed, to make the servo move in the correct direction.

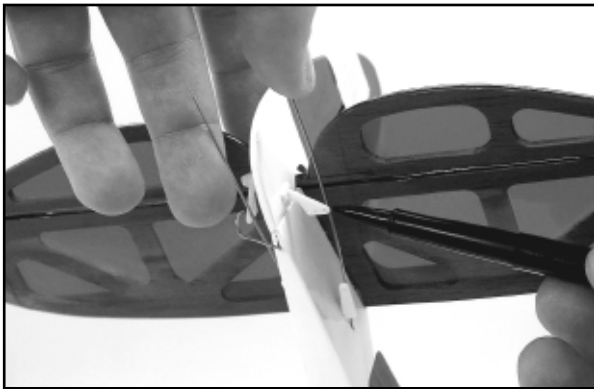
- e) Reposition the servo output arms on the servos as close to 90° to the servo case as possible. Reinstall the servo output arm screws in both servos.

f) Now make sure the motor shaft is moving in the correct direction. When viewing the fuselage from the rear to the front -- as if you were sitting in the cockpit -- the motor shaft should turn clockwise when throttle is applied.

e) At this point, the servo output arms should now be centered, the servos should be moving in the correct directions and the motor should be turning in the correct rotation.

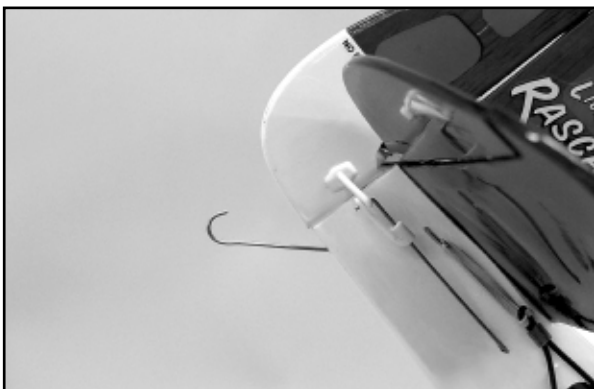
□ 5) The wire pushrods are now connected to the rudder and elevator control horns. First turn on the transmitter and then plug the charged battery pack into the ESC connector. Use small pieces of tape to hold the rudder and elevators in the neutral position to the vertical fin and the horizontal stabilizer.

□ 6) Locate the two (2) white plastic pushrod keepers from the kit contents. Slide one of these keepers onto the wire rudder pushrod, sliding it all the way to the fuselage side. Now hold the pushrod wire against the side of the rudder control horn and use a fine tip marker pen to mark the exact position of the rudder horns hole on the wire.



Use a pair of pliers to firmly hold the pushrod wire exactly at the mark just made and bend the wire straight down at a 90° angle. The excess pushrod wire is now removed, leaving about 1/4" of its length to pass through the control horn hole – use a good pair of wire cutters to do this. The bent end of the pushrod wire is now inserted into the hole in the control horn. Slide the plastic pushrod retainer out to the control horn and press its tab end over the exposed wire on the opposite side of the control horn.

□ 7) Using the same technique described above, bend, cut, and secure the elevator pushrod to the elevator control horn - remember to first slide the remaining white plastic pushrod keeper onto the pushrod wire.



□ 8) Remove the pieces of tape holding the rudder and elevator in the neutral position. Now test the action of the rudder and

elevators with your transmitter. If necessary, use the rudder and elevator trims to adjust the surfaces back to neutral.

□ 9) The suggested initial control throws are now set for the rudder and elevator. Most modern radio systems allow you to set the total movement of the servos directly from the transmitter. This is usually referred to as EPA, or end point adjustment. You can use this feature to now adjust the control movements for the rudder and elevators. The following control movements are recommended for initial flights. These measurements are taken at the widest part of the elevators and rudder, at their trailing edges. Later, when you are more comfortable with the Lil' Rascal ARF and how it flies, these control throws can be increased to suit your needs.

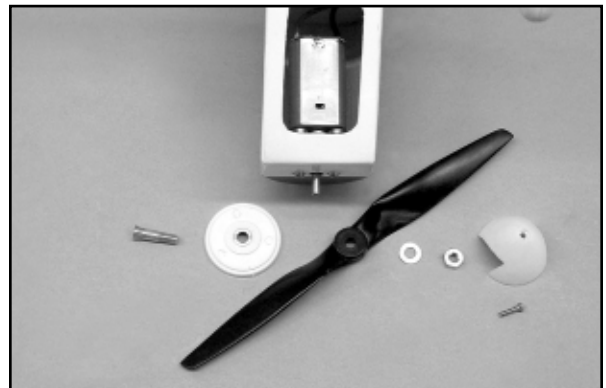
#### RECOMMENDED INITIAL CONTROL THROWS:

Rudder: 1/2" left and 1/2" right  
Elevator: 1/2" up and 1/2" down

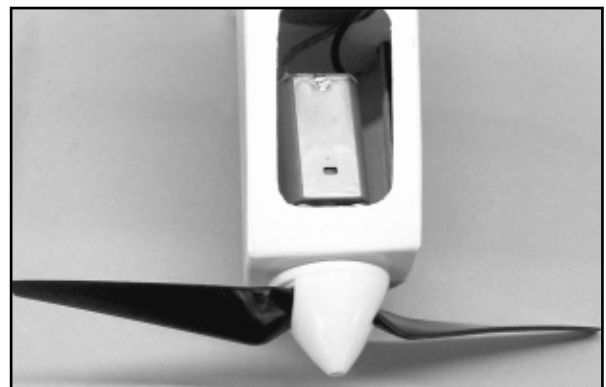
#### MOUNTING THE PROPELLER AND SPINNER:

**IMPORTANT NOTE:** *The propeller and spinner assembly supplied in this kit was expressly designed for use with electric power systems. These components are not designed for use with internal combustion engines. Under no circumstances should these units be used with internal combustion engines because they may fail and cause serious damage.*

□ 1) Locate the propeller and spinner assembly from the kit contents. These are the black nylon propeller, the white plastic spinner cone, the spinner backplate, the threaded aluminum collet, the propeller nut & washer, and the spinner bolt.



□ 2) Press the aluminum collet firmly onto the motor output shaft at the front of the fuselage until it bottoms out. Slide the spinner backplate onto the threaded end of the collet, as far back as it will go. Slide the propeller onto the collet, back to the backplate. Install the washer onto the collet and thread the nut onto the collet threads. Align the propeller between the recesses in the spinner



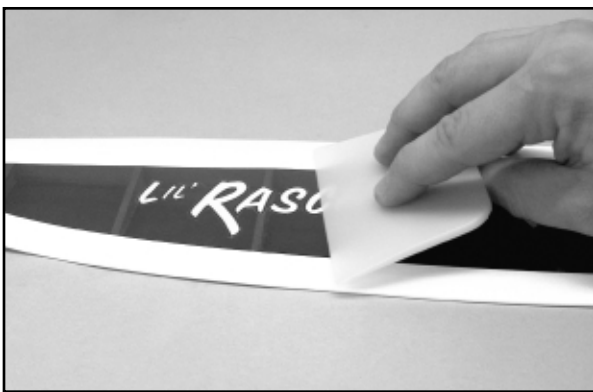
backplate and lightly tighten the nut with finger pressure to hold the propeller to the backplate. Place the spinner cone in place, aligning the ridges in its edges with the recesses in the backplate. Adjust the propeller position as needed to allow the spinner cone fit in place into the backplate. Remove the spinner cone and use a small wrench to tighten the propeller nut firmly to the backplate. This also pulls the collet into the backplate, securing it to the motor shaft. Place the spinner cone back in place, pressing its locating ridges into the recesses in the backplate and secure it to the collet with the spinner bolt.

□ 3) **IMPORTANT:** With the propeller now mounted to the motor, it is very important that you always remain aware of the position of the throttle stick on your transmitter. Under no circumstances should you hold this model by the nose when the radio system is turned on. The motor/geardrive unit used in this model is relatively powerful and can cause damage if it is running and should come in contact with people, property, etc.

#### DECAL APPLICATION:

The decals supplied with the Lil' Rascal ARF are high quality Mylar® with an extremely aggressive adhesive. These are not die-cut and must each be cut from sheet with a hobby knife and a sharp #11 blade or with sharp scissors.

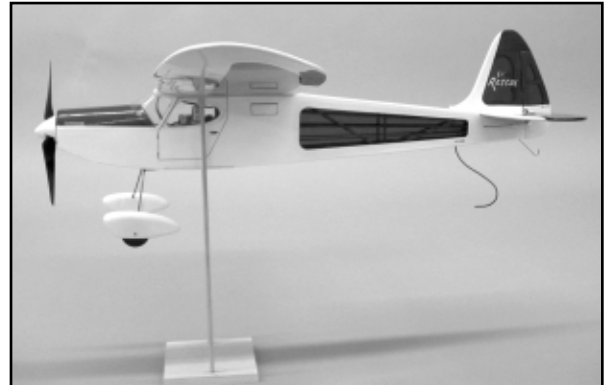
The small decals can easily applied to the model using tweezers and finger pressure to set them. For the larger decals, such as the door outline and the "Lil' Rascal" wing decal, we suggest the following method to accurately apply them. Carefully cut out the decal with a hobby knife. Lift it carefully off its sheet with tweezers. Use a product like SIG Pure Magic Model Airplane Cleaner, Fantastic®, or Windex® to spray the area of the model that will receive the decal. Then spray the adhesive side of the decal as well. Lightly position the decal in place on the model. The liquid cleaner allows the decal to slide easily into the desired position - do not press down on the decal. Once in position, hold the decal lightly in place with your finger and use a paper towel to gently blot the excess liquid away. Use a small squeegee to now set the decal in place, removing all excess liquid and any air bubbles. The SIG 4" Epoxy Spreader - #SIGSH678 - is perfect for this job. Blot up any excess cleaner with a dry cloth and allow the decals to set overnight. They will be solidly adhered to the model without any air bubbles.



#### BALANCE:

**IMPORTANT:** The flight pack battery must be installed in the fuselage and the propeller and spinner mounted in place to the gearbox when setting up the correct Center of Gravity (CG) location.

The correct CG location for the Lil' Rascal ARF is located precisely at the main spar. This means that when you place your fingers, one on each side of the bottom of the wing, at the main spar location, the airplane must balance in a level position. If the nose hangs low, the model is "nose heavy". If the tail hangs low, this means that the model is "tail heavy". If either of these conditions exists, you must make adjustments to correct the problem. Never attempt to fly your model in an out of balance condition. Since the flight battery pack is the single heaviest component in the airplane, it can be used to adjust almost any tail heavy or nose heavy condition. This is simply done by moving the battery forwards or backwards.



#### PRE-FLIGHT NOTES:

Be sure your flight battery packs are fully charged or that you take your 12-volt battery charger to the field with you. Also, be sure your transmitter is fully charged. We highly recommend that you perform a standard range check of your radio system - with and without the motor running. Any problems you have will not magically disappear at the field! Make sure your propeller is balanced and has no nicks or cracks - never fly with a faulty propeller! Finally, take a few minutes to make sure that you go through your model to make sure everything is secure and tight.

#### FLYING:

If you are new to the hobby/sport of flying R/C model airplanes, **DO NOT** attempt to fly this model by yourself! There are hundreds of AMA (Academy of Model Aeronautics) chartered R/C clubs in the U.S. The easiest way to find flying clubs in your area is to ask your hobby retailer. AMA chartered clubs often have qualified instructors who can teach you how to fly and perhaps even test fly your model for you. If you are already an R/C pilot, then you will likely have no problems at all with flying the Lil' Rascal ARF.

Choose a calm day with little or no wind for the initial flights. This is important in getting the model properly trimmed. We also suggest that for the first few familiarization flights, you have a buddy hand-launch the model. When hand launching, the airplane must be launched straight and level directly into the wind, with the nose aimed at a point on the ground about 75' in front of you. *Never* launch the model with the nose pointed up or the wings tipped to one side or the other. The launch should be firm enough to achieve flight speed but yet not overly hard. Later, when you're more familiar with the airplane and how it flies, you can perform R.O.G. (Rise Off Ground) takeoffs from smooth surfaces.

With a fully charged 7-cell battery pack, your Lil' Rascal ARF should climb out well at full power and you should have no problem getting to a comfortable trimming altitude quickly. At altitude, throttle back to a comfortable "cruise" speed and get

familiar with the model at slower speeds. Take care of any trim requirements that might be needed and settle back and have fun! Now is the time to find out how the airplane reacts to the control inputs. It does not take much so take it easy on the elevator. Avoid trying to use elevators to “force” the airplane to altitude. Instead, use forward airspeed to allow the airplane to climb on its own. Properly set-up, with the correct CG location, the airplane should be very comfortable to fly at the suggested initial control movements. Throttle all the way back, turning off the motor and check out the glide. It should be fairly flat and relatively slow - perfect for a little thermal hunting! While still at altitude, with motor off, test the stall characteristics of your airplane. The Lil' Rascal ARF should demonstrate a fairly sedate stall with almost instant recovery.

The Lil' Rascal is capable of some interesting aerobatics. Consecutive loops are easy. It can also perform some neat looking rudder rolls, and even inverted flight is possible with practice. It can be forced into a great looking spin by applying a little throttle along with full up and hard left or right rudder. Don't worry, the pull out from a spin is virtually instantaneous. From experience, we can assure you that you will find low flybys and thermal soaring a source of endless pleasure. Even though the color schemes offer great visibility, be careful of the altitude gain! This airplane can get small fairly quickly.

Landing the Lil' Rascal is easy. Throttle back to achieve a shallow rate of sink, turn into the wind and allow the airplane to settle in smoothly to a 3-point landing. With a little experience, you'll be landing the Lil' Rascal right in front of you every time!

A final word of caution is in order. Never land your airplane in tall grass or weeds with the motor running. Always throttle completely back if you see that you may wind up landing in such terrain or nose over. Tall grass and weeds may get tangled in the propeller and stall the motor if it is running. A stalled motor can overheat the ESC and batteries, causing them to fail. Fly smart and you will fly for a long time.

**IMPORTANT NOTE:**

Although the Lil' Rascal ARF is considered a “park flyer” and can be flown in fairly confined spaces by accomplished pilots, it should never be flown within five miles of an organized R/C aircraft flying site. This one simple precaution can prevent the loss of your model from radio interference. Do yourself a favor and join your local R/C club – you'll almost always get assistance and good advice and you might even make a friend or two!



## **WARNING! THIS IS NOT A TOY!**

Flying machines of any form, either model-size or full-size, 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.

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](http://www.modelaircraft.org)**

## **CUSTOMER SERVICE**

SIG MANUFACTURING COMPANY, INC. is totally committed to your success in both assembling and flying the LIL' RASCAL ARF kit. Should you encounter any problem building this kit or discover any missing or damaged parts, please feel free to contact us by mail or telephone.

**SIG MANUFACTURING COMPANY, INC.**  
P.O. Box 520  
Montezuma, IA 50171-0520

**SIG MODELER'S ORDERLINE: 1-800-247-5008**  
(to order parts)

**SIG MODELER'S HOTLINE: 1-641-623-0215**  
(for technical support)

**SIG WEB SITE: [www.sigmfg.com](http://www.sigmfg.com)**

## **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.

**SIG**

# Lil' RASCAL

**ALMOST READY TO FLY**  
Electric Powered Park Flyer

