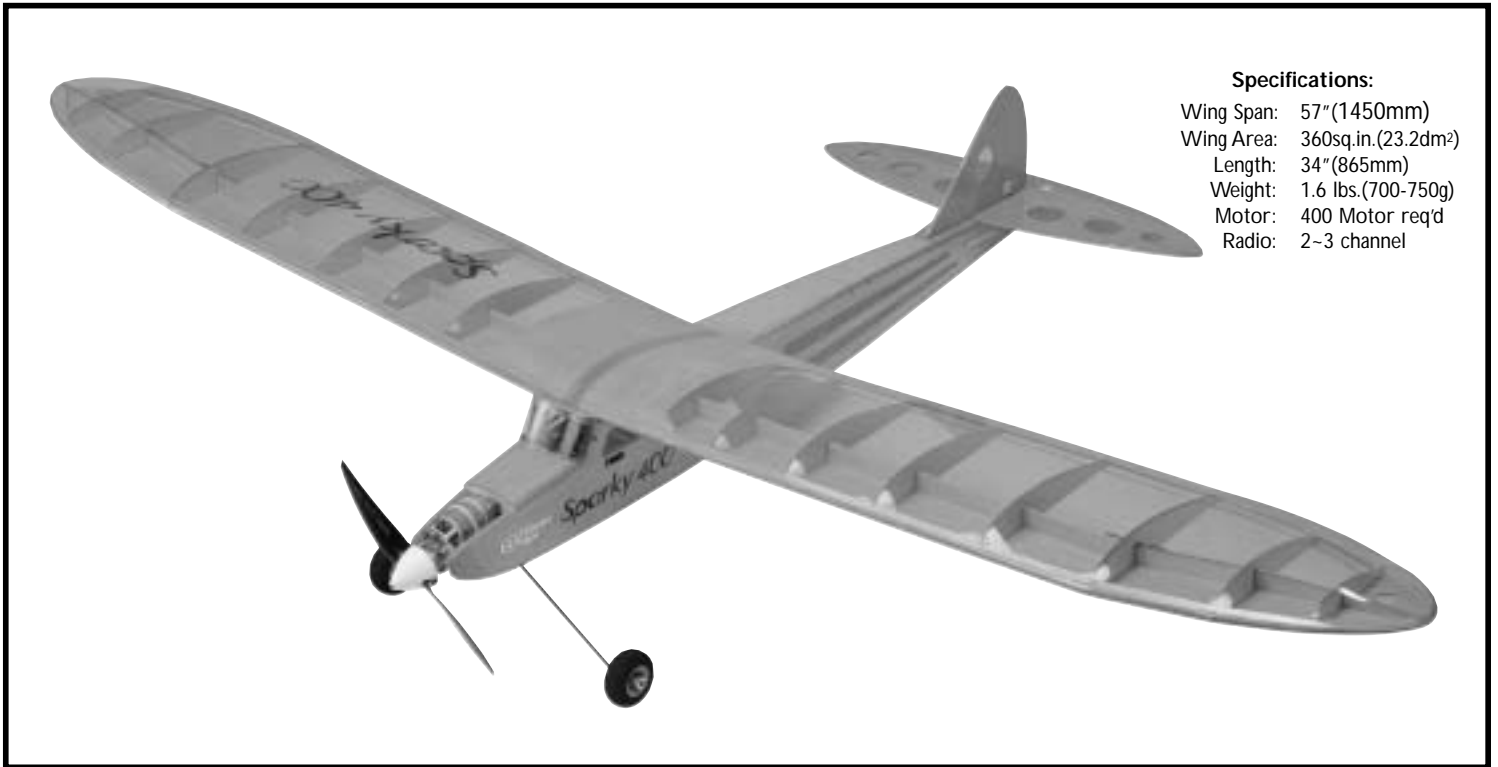


Sparky ARF

Assembly Manual



Specifications:

Wing Span: 57" (1450mm)
Wing Area: 360sq.in. (23.2dm²)
Length: 34" (865mm)
Weight: 1.6 lbs. (700-750g)
Motor: 400 Motor req'd
Radio: 2-3 channel

Sparky ARF Airplane (TTR4307)

Distributed in North America by Ace Hobby Distributors, Inc. • 116 W 19th ST, Higginsville, MO 64037
Phone: 660-584-7121 • www.acehobby.com • E-mail: service@acehobby.com

Warranty

This kit is guaranteed to be free from defects in material and workmanship at the date of purchase. It does not cover any damage caused by use or modification. The warranty does not extend beyond the product itself and is limited only to the original cost of the kit. By the act of building this user-assembled kit, the user accepts all resulting liability for damage caused by the final product. If the buyer is not prepared to accept this liability, it can be returned new and unused to the place of purchase for a refund.

Notice: Adult Supervision Required

This is not a toy. Assembly and flying of this product requires adult supervision.

Read through this book completely and become familiar with the assembly and flight of this airplane. Inspect all parts for completeness and damage. If you encounter any problems, call 660-584-6724 for help.



INTRODUCTION

The Sparky is reminiscent of a time when things were more relaxed and life happened at slower pace; everything was simpler...easier.

Now you can enjoy this "old-timer" feeling with these Almost-Ready-To-Fly planes. A large wing span, high aspect ratio elliptical wing provides ultra-stable and slow flight, perfect for the beginner or an experienced pilot looking for relaxation.

Pre-Assembly Notes

Before beginning the assembly read the instructions thoroughly to give an understanding of the sequence of steps and a general awareness of the recommended assembly procedures.

By following these instructions carefully and referring to the corresponding pictures, the assembly of your model will be both enjoyable and rewarding. The result will be a well built, easy to assemble ARF model, which you will be proud to display and also provide you considerable enjoyment.

If you are not an experienced R/C pilot, plan to have a fully competent pilot check your completed model and help you with your first flights. Even though we have tried to provide you with a very thorough instruction manual, R/C models are rather complicated and an experienced modeler can quickly check over your model to help make sure your first flights are successful.

Before you begin, check the entire contents of your kit against the parts list and photos at back cover to make sure that no parts are missing or damaged. This will also help you to become familiar with each component of your plane. If you find that any of the parts are either missing or damaged, please contact Ace Hobby Distributors, Inc., Customer Service (660-584-6704) immediately for replacements.

Trial fit each part before gluing it in place. Make sure you are using the correct part and that it fits well before assembling. No amount of glue can make up for a poor-fitting part.

ITEM NEEDED FOR COMPLETION



N0.8301

Radio - A 3-channel radio with three standard or mini servos is required. The Ace R/C Commander is ideal.



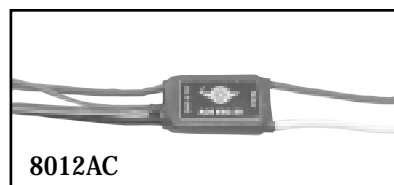
AS6162

Motor - Thunder Tiger Electric Power System includes 400 motor, 1:2 gear reduction set, 9 x 6 propeller and spinner.



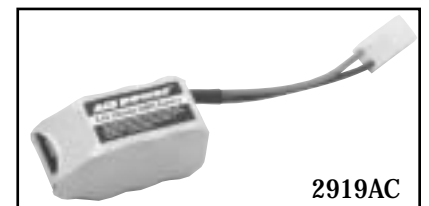
2604AC

Charger - Ace R/C 8.4V 60 min. DC Quick Charger



8012AC

ESC - Ace R/C Electric Speed Control Unit ESC-30



2919AC

8.4V Battery Pack - AcePower 8.4V 900mAh NiMH battery Pack

TOOLS & MATERIALS

WING ASSEMBLY

I. Wing Assembly

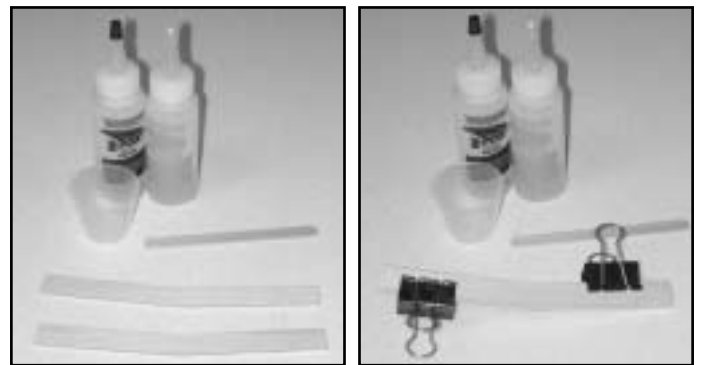
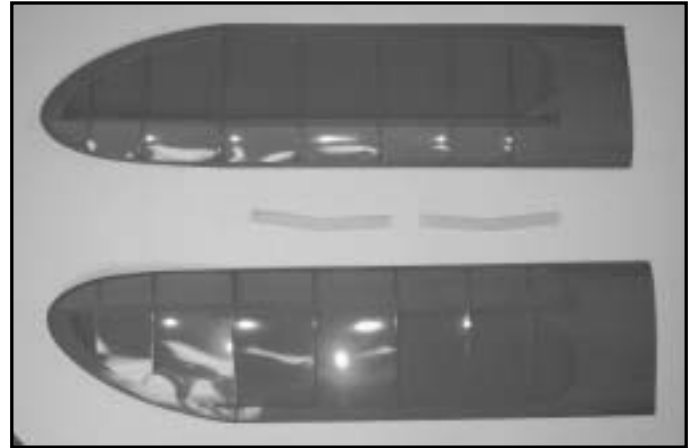


Adhesives - You will need two types of adhesives for the Sparky - Epoxy and Instant (cyanoacrylate) adhesives. We recommend that you purchase both 10-minute and 30-minute epoxy to cut down on assembly time, but you can get by with only 30-minute epoxy if time is not important. You will also need a small bottle of both "Thick" and "Thin" instant adhesive.

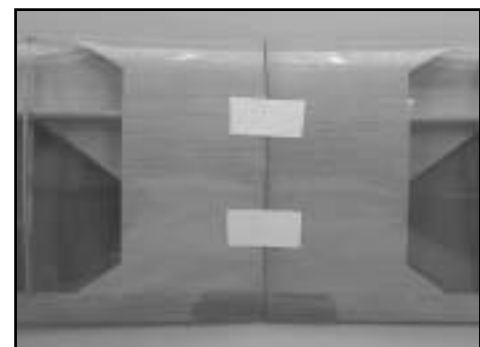
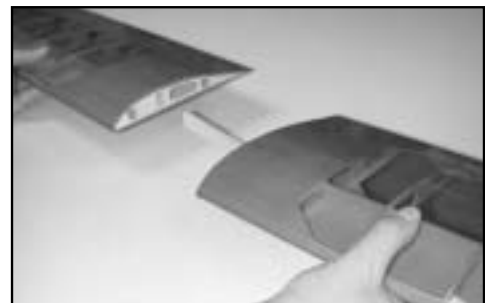


Tools - Model assembly can be much easier if the proper tools are used. As you will notice, many household tools can be utilized during construction. Besides above tools, some other tools or materials like T-Pins, Scissors, Drill and Drill Bits, Fine Felt Tip Pen, Rubbing Alcohol, Masking Tape will be used when assembling.

A. Locate both wing halves and the two dihedral braces. Mix a small amount of 5-minute epoxy and glue both dihedral braces together. With the two dihedral braces together, trial fit the braces in each wing half. With dihedral brace in one wing panel, trial fit it to the other wing panel, assuring no gaps from leading edge to trailing edge.

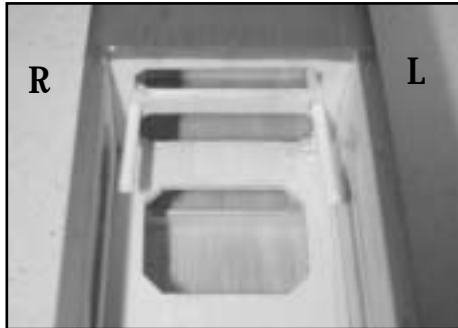
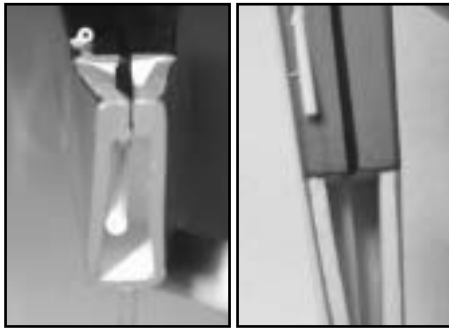


B. Mix up a small amount of 30 minute epoxy and apply to both sides of both inner ribs and dihedral brace slot. Insert brace into one wing panel before putting wing panels together. After wings are together, wipe off excess epoxy, tape and set aside to cure. After epoxy is cured, glue the wing protector at the joint of the trailing edge.

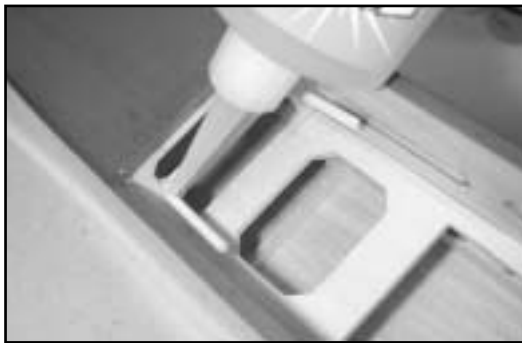


FUSELAGE

II. Pushrod Housing Installation



A. Carefully install rudder and elevator pushrod tubes; insert the elevator pushrod tube through the hole in the rear former through the fuselage and out the pre-drilled hole in the right of the rear cabin former.



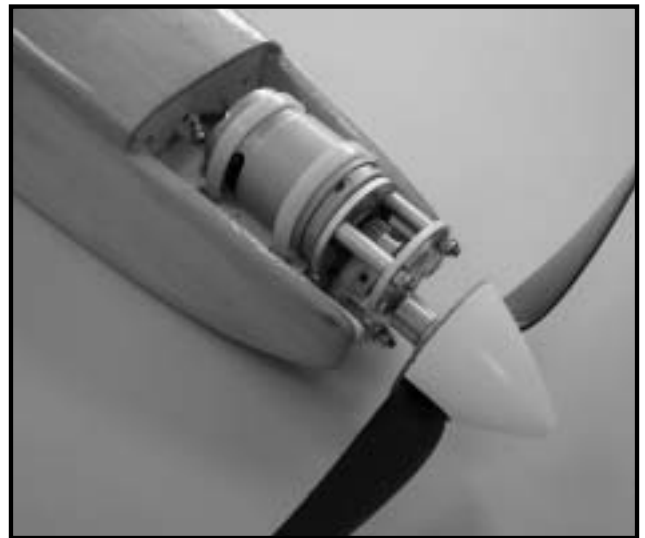
B. With a hobby knife, remove covering from existing slot in top rear of fuselage and insert rudder pushrod tube through fuselage and out pre-drilled hole in left rear cabin former. Use just a dab of CA glue to

hold pushrod tubes in place.

III. Motor Installation



A. File the motor mount at the beam as shown for better fitness.



B. Secure the motor tightly with enclosed Zip-Tie.
IV. Wing Hold Down Dowel Installation



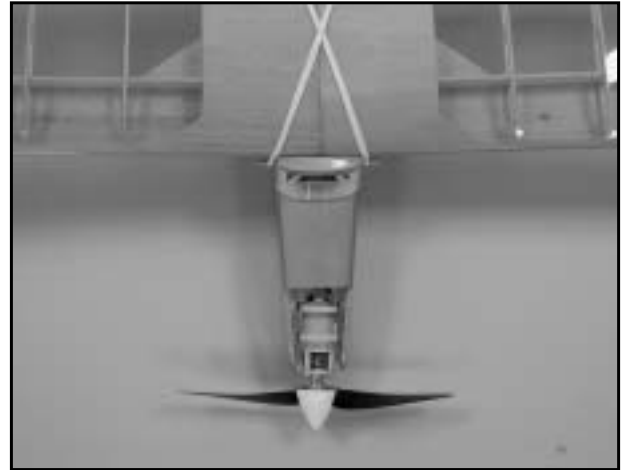
A. Cut away the covering film from the predrilled holes in the fuselage with a hobby knife.



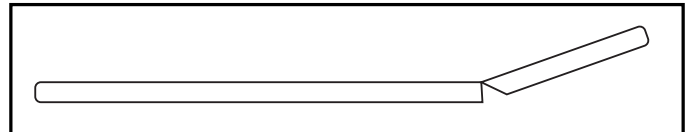
B. Install dowels and place a drop of medium CA to hold dowels in

place.

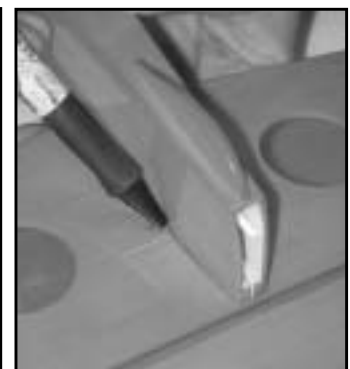
V. Stab and Rudder Installation



A. Center the main wing on the fuselage and attach using the rubber bands provided.



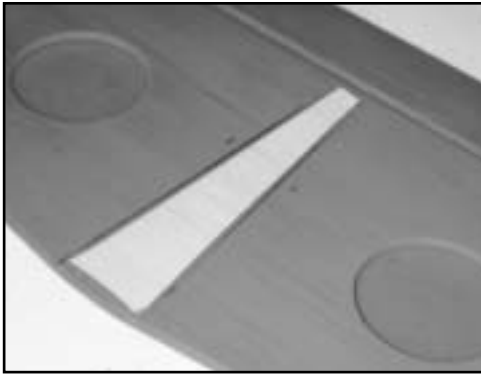
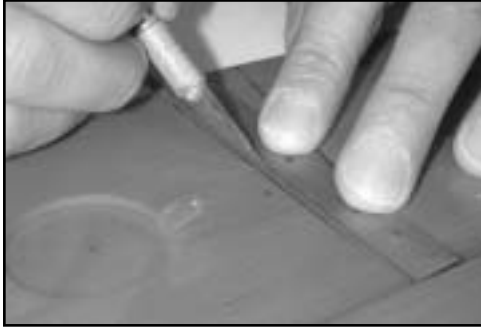
B. Determine the top and bottom of the stab like this: the sealed edge of the elevator should be on top, and the beveled edge be on the bottom.



C. Place the stab on the tail of the plane and measure from points shown above. This will square the stab in the saddle. Pin the stab in

STABILIZER

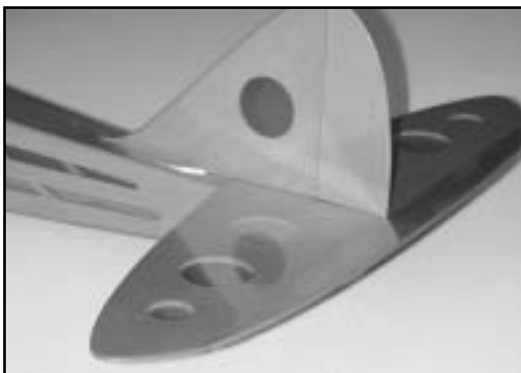
place with T-pins, and mark the bottom of the stab.



D. Remove the stab and place top-down on a flat surface so you can see the markings you just made. With a small steel rule, place it on the inside of the lines about 1/16". Using an Xacto knife, cut to remove the covering from the stab. **BE CAREFUL NOT TO CUT TOO DEEP AS YOU MAY WEAKEN THE STABILIZER. TRY TO CUT ONLY THE COVERING.**

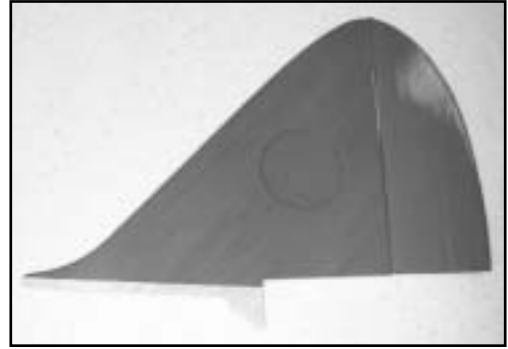


E. Use a hobby knife to remove the covering film from the fin slit in the tail of the plane.



F. Trial fit stab and fin to fuselage before gluing. Mix a small amount of 15 minute epoxy and glue the stabilizer into place, rechecking your alignment marks by remeasuring as shown in previous step to insure

proper alignment of stab and wing.



G. Insert the fin into the slot in the tail and mark the fin as shown. Remove the fin and use a hobby knife and straightedge to remove the covering film from the bottom of the fin. **AGAIN, BE CAREFUL NOT TO CUT TOO DEEP AS YOU MAY WEAKEN THE STABILIZER. TRY TO CUT ONLY THE COVERING.**

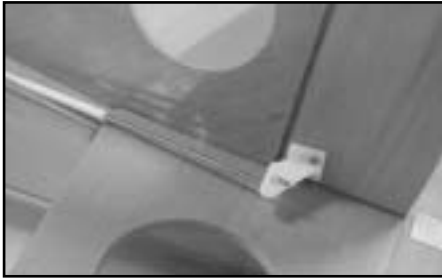


H. Apply some thick CA to the bottom rear of the fin and insert it into the slit. Use a 90 degree triangle to square up the fin with the stabilizer. Next wick some thin CA in the joint where the fin meets the slit.



I. Mount the rear control horns; place the control horn on the bottom center of the elevator in line with the pushrod tube. Mark the

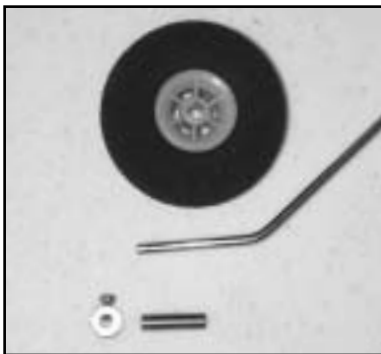
holes for the control horn using a felt marker.



J. Attaching the control horn using two 2mm screws and backing plate. It might be wisely to connect the pushrod at the z bent end and insert the pushrod to the tube before installing the control horn. Attach the rudder control horn in the same manner.

Note: The longer pushrod is for elevator, the short one is for rudder.

VI. Landing Gear Installation



A. Landing gear is assembled with 4 wheel collars, 2 bushing, and 2 wheels. Install one wheel collar on to the landing gear, then slide the brass bushing on, slide the wheel over the bushing, and finally install the second wheel collar. Repeat process for other wheel.



B. Using a hobby knife remove the covering over the landing gear slot. Push the landing gear down into the slot. Apply a few of drops of medium CA into the slot and slide the former into place. **WARNING: WHEN YOU INSERT THE FORMER, IT WILL SQUIRT EXCESS CA OUT THE HOLES NEAR THE LANDING GEAR, SO BE CAREFUL!!**

VII. Servo, Radio, Battery, & Switch Installation



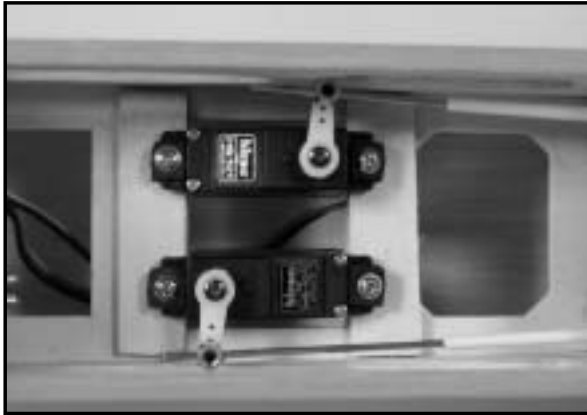
A. Using a hobby knife remove the covering film from the switch cut out on the left side of the fuselage.



B. Glue the two plywood pieces as the servo tray if you use the mini servo. You might place your mini servo as a guide then glue the ply-

RADIO

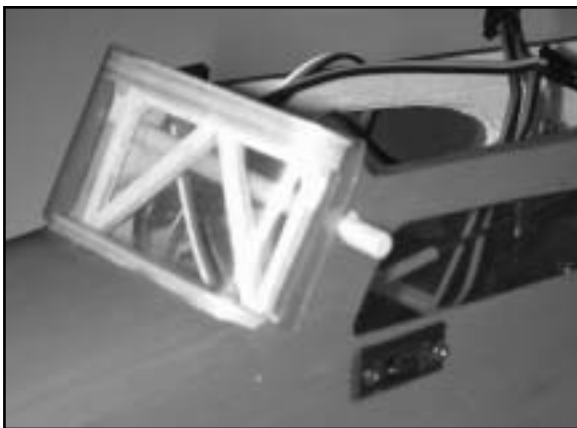
wood in place.



C. Secure the mini servo in place as shown. Install the EZ connector on the servo horn. Insert the pushrod first then place the horn on the servo. Make sure the servos are in neutral position then screw the horn.



D. Install the receiver, ESC, battery back as shown. Please refer to the manufacturer's instruction manual for correct connection. Poke a hole in the bottom of the cabin and run the antenna out and down the bottom of the fuselage and attach to the tail using whatever method you prefer.



E. Install the ESC switch

VIII. Balancing

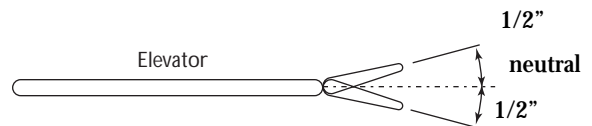
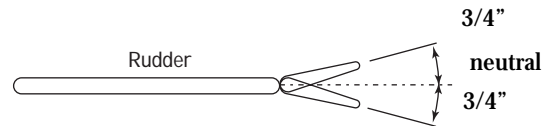


E. Balance the plane. With the wing on the airplane, use your two index fingers to suspend the model in the air. Locate your fingers 1 1/4" back from the leading edge of the wing, about 4" out from the fuselage. At this point, a right angle is formed where the leading edge and the center balsa sheeting ends. You can feel this point with your finger tips.

The plane should hang level or slightly nose down at this point. If the tail drops, you need to redistribute or even add weight to the nose until the plane balances.

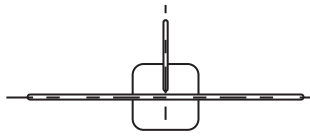
IX. Control Throws

Make sure that all control surfaces move in the proper direction. Set the control surface throws as indicated for the initial flights. These may be altered later for personal preference.

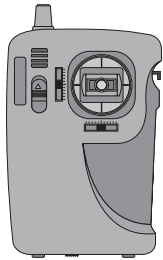


THE DIRECTION OF MOVEMENT (RUDDER AND ELEVATOR)

NEUTRAL

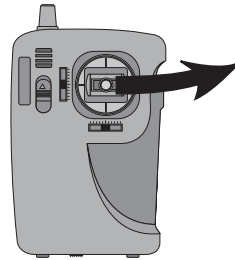
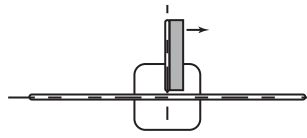


Check the position of rudder and elevator (if these are in neutral).



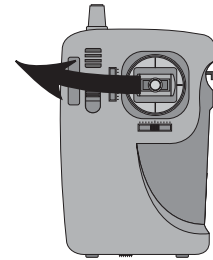
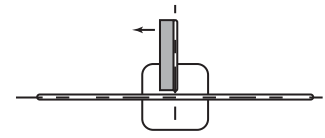
Set the trim in neutral position.
Set the sticks in neutral position

RIGHT TURN



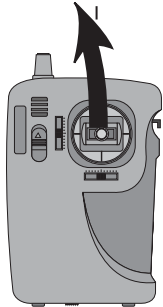
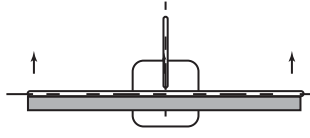
Move the stick to the right.

LEFT TURN



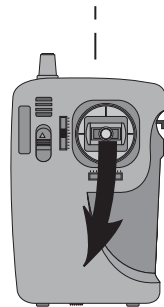
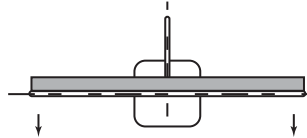
Move the stick to the left.

DOWN



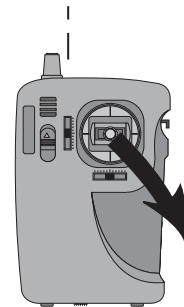
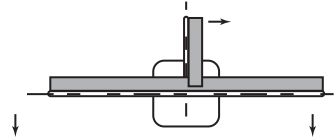
Move the stick up.

UP



Move the stick down.

RIGHT AND UP



Move the stick down and right.

X. Pre-Flight

- Prior to the first flight ensure that all batteries are properly charged, that controls all move in the proper direction, and that a thorough range check is made with and without the motor running.
- Rubber band the wing on using six rubber bands to secure the wing. Use one on both the right and left side, then crisscross two more from the right front to the left rear and crisscross the final two from the left front to the right rear.
- Choose a calm day for your first flights. Also, choose an open field with no obstacles or people.
- Make sure there are no other pilots operating on the same channel (frequency) as you are. If you turn your radio on while

he is flying, you will cause him to crash.

- Check you radio for good range (50 ft. with the antenna collapsed) and proper operation.
- MAKE SURE NO ONE IS OPERATING ON YOUR FREQUENCY (Channel number).** Any flying field has rules to govern frequency usage. Make sure you abide by them.
- Refer to your radio instruction manual for the proper ground range you can expect from your system. Perform this range check each flying session.
- Check the motor, gear & propeller to make sure that everything are secured.
- The rotating propeller is very dangerous, always switch on the

GENERAL FLYING

transmitter first and make sure the throttle control stick or slide throttle (ACE T3S) is at idle position.

XII. Flying

You should have a flight instructor teach you how to fly the Sparky. Like a real airplane, you must have an understanding of how to fly the model before launch, or you will probably not be successful. Check at your hobby shop or call the AMA (800-435-9262) or surf its website at www.modelaircraft.org for flying clubs in your area.

Take-off

A proper hand-launch of the airplane is necessary for flight. It must be launched into the wind with a firm toss. The airplane must be tossed level or even pointed a little down. It should never be thrown upward, or it will stall and crash.

Flight

Steer very gently right and left to keep the wings level. Let the airplane climb out gradually and gently until it reaches a comfortable cruise altitude at full flight speed. Always keep the airplane upwind of yourself and within a reasonable distance so you can see what it is doing. Remember, when the plane is coming toward you, when you move the stick to the right, the airplane will go to the left from your point of view. This is the hardest thing to learn. Initially, you can keep your body pointed in the same direction as the airplane and look over your shoulder.

Usually, only small stick movements are required. Try to keep your flying smooth. You can turn the plane by bumping small amounts of rudder and then return to neutral. Use the elevator to keep the airplane at the desired altitude. After a while, coordinate your turns with the elevator; i.e., bank the plane with a little bit of rudder, then feed in some up elevator to maintain the turn at the same altitude. If the plane tends to turn one way or the other use the trim lever on the control stick to neutralize the flight. Same thing applies if the plane wants to climb or dive.

Landing

Set up your landing approach. Always try to land INTO THE WIND. Keep your turns gradual and only use elevator to maintain a gradual glide. Since the motor is off, you can no longer climb and the plane slows down. If you feed in too much up elevator, the plane will stall and may crash.

Just before touchdown, "flare" the plane by adding up elevator. The plane should slow down even more and come in for a gentle landing. Don't add too much elevator, too soon!

Walk over to the plane and turn off the switch on the plane, then the transmitter switch. Check over the plane to make sure nothing loosened up or broke.

In Case of Trouble

If the radio is erratic (glitches), check that the transmitter and receiver antennas are extended to their full length. Make sure the transmitter batteries are fresh. Make sure no one else is operating on your channel (frequency) in the immediate vicinity.

If the plane does not fly properly, make sure you are being gentle with the control inputs. Make sure the plane is balanced properly. If your trouble persists, call 660-584-6724 for technical help.

Conclusion

To defeat the laws of gravity and take to the wing is both challenging and thrilling. We hope you enjoy your entry into the fascinating world of R/C flight and make it your hobby for a lifetime.

Please let Ace R/C and Thunder Tiger be your chosen brand, no matter what direction you progress.

XIII. Post-Flight

Turn off all switches and if you are done for the day, clean-up your plane with some spray cleaner (such as 409) and paper towels. While you are cleaning the plane up, inspect it for damage...check the prop for dings or chips. Spray some WD40 on and in the gear section and motor shaft for better lubrication.

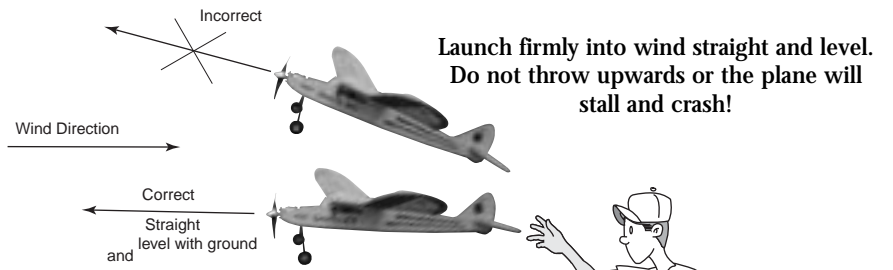
XIV. Safety Precautions

1. Take great attention to the motor and propeller as they might be deadly weapon when rotating.
2. Always switch on the Transmitter first and make sure the throttle at the "Down" position then switch on the ESC switch.
3. Always stay behind the propeller when the motor is running. Only switch on the motor when you are ready for launching. Under no circumstances should you allow your face or body near the plane on rotation of the propeller when motor is running.
4. Do not allow loose clothing or other loose objects close to the prop.
5. To stop a motor, switch off the power or move the throttle stick down.
6. Move the throttle stick (slide throttle) down to switch off the power immediately in case of any CRASH, HEAVY LANDING and NOSE DOWN or any situation that prop could not rotate freely as it might damage the ESC and motor.

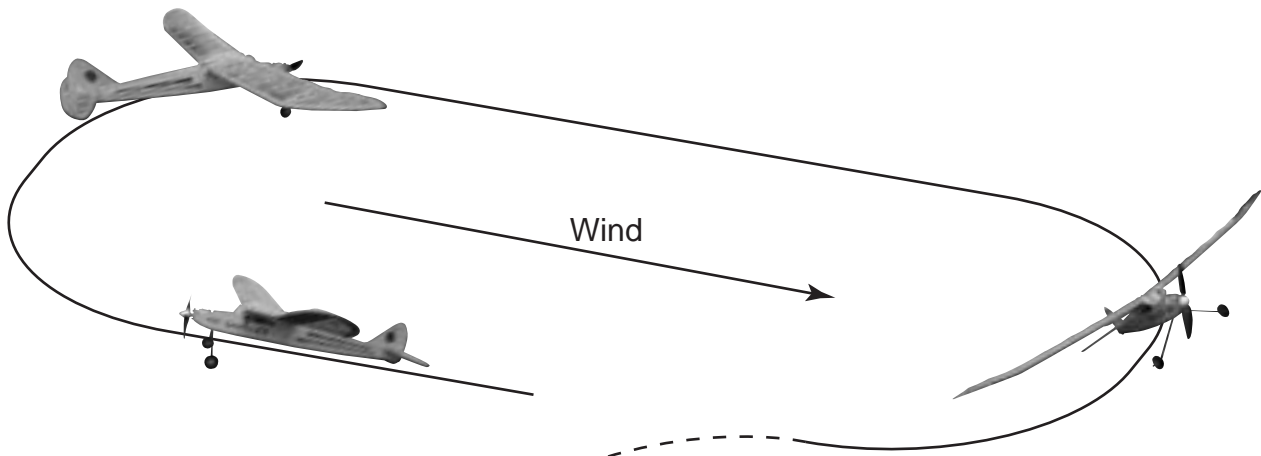
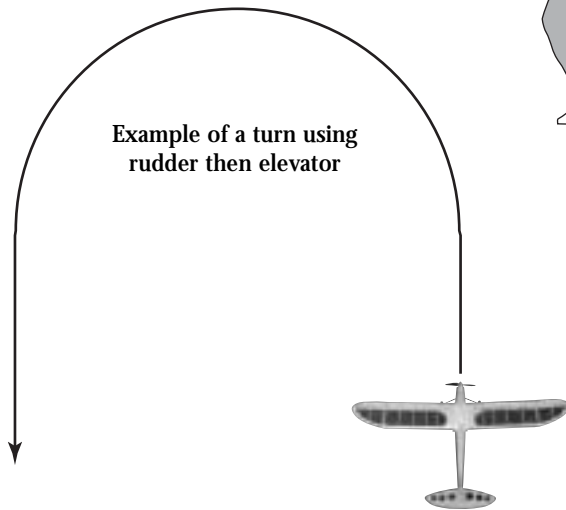
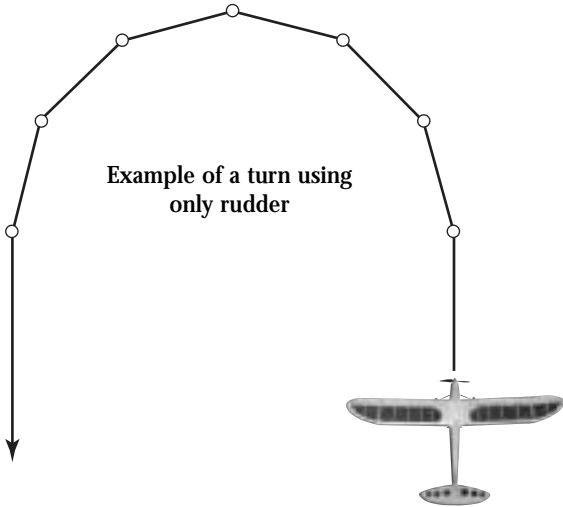
XV. Repair

In the event of a minor mishap, the Sparky usually can be repaired. Begin by completely cleaning the area being repaired with alcohol to remove any oil residue.

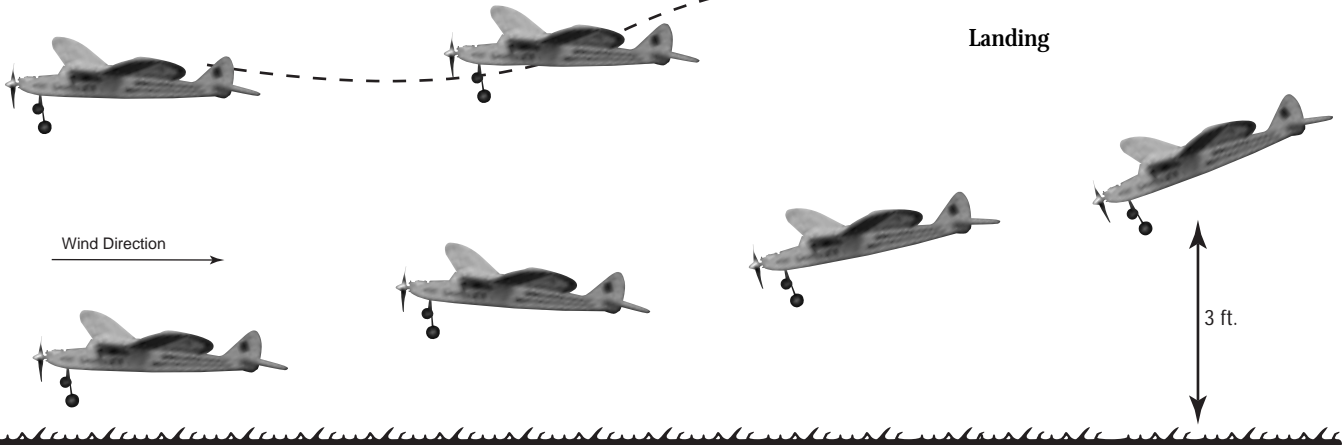
- * Balsa components can be glued back together with CA glue.
- * If you need to repair around the firewall/motor mount area, use epoxy.
- * Locate the covering film and heat iron for patching at your local hobby shop if necessary.



Launch



Landing



PARTS DRAWINGS

IMPORTANT

Please check the contents of your kit box with these part sketches before beginning construction. This will not only familiarize you with the parts and their names, but it will also give you a head start in the unlikely event that you are missing a part.

AS6159 Wing Set

Dihedral Brace (2)

Wing Protector (1)

(Left/1,Right/1)

AS6158 Fuselage

Servo Tray (2)

Fuselage(1)

AS6160 Pushrod Set

Z Bent Pushrod (2)

Plastic Guide Tube (2)

AS6142 Landing Gear Set

Main Landing Gear (1)

Bushing (2)

Collar (2)

Wheel (2)

3mmx5mm Screw (2)

AS6165 Horizontal Tail

AS6166 Vertical Tail

PE0009 Hardware Set

Allen Wrench (1)

Pushrod Connector (2)

3mmx3mm Screw (2)

2mm HEX Nut (2)

AS6023 Control Horn Set

Control Horn Back Plate(2)

2mmx8mm Screw (4)

AS6164 Decal

JE6452

Parts are not necessarily drawn actual size