



# Radio Control

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Pretty Diane Suszynski holds Jim Kimbro's Deception. Location, Bringale Terrace Park in Vista, California—photo by Ed Suszynski.

## THE DECEPTION . . .

BY JAMES R. KIMBRO, JR

Don't let its smooth, even lines, its quiet on-field demeanor deceive you or lull you into a false sense of security, as The Deception in the right hands is an all-out pattern competitor that can do it all for you at any contest. It's a real winner! Story begins on next page!



rolls around the thrust line, I felt that the wing and stab's being the same distance would help the aircraft to roll better. Next, I decided on the length of the nose moment. I drew the nose ring on the plans, and decided how long I wanted the fuselage to be. I drew the trailing edge of the rudder on the plan, and was now free to draw the side view of the fuselage in any shape that was aesthetically pleasing to me.

I turned to the top view of the fuselage. I feel that, when looking at the fuselage from the top, you should see a smooth flow from the tip of the spinner to the trailing edge of the rudder, much like an airfoil. If the fuselage is in the shape of an airfoil, it should help hold the aircraft in the knife-edge position.

After this came the fin and rudder. The rudder on the Deception is a departure from the norm: All of the movable part of the rudder is above the stab. I have built Deceptions with a full-length rudder and with all the rudder on top. Although the full-length rudder works fine, I found that, when full rudder was applied in level flight and held, it induced a rolling tendency. With all the rudder on top when full rudder is applied and held, the only thing that happens is that the aircraft will sideslip through the air and have no roll tendencies whatsoever. I found this to be extremely advantageous in the point roll maneuvers because when you finish the maneuver, you can hold in the rudder used on the last point until calling complete, thus eliminating the fishtailing effect some aircraft exhibit when finishing a point roll.

The fin is fairly small in comparison to some pattern airplanes. In my experience, I have found a smaller fin and larger rudder



Happy author with his Deception, which helped move him up through the pilots' chairs!

# THE DECEPTION

der to be the best combination.

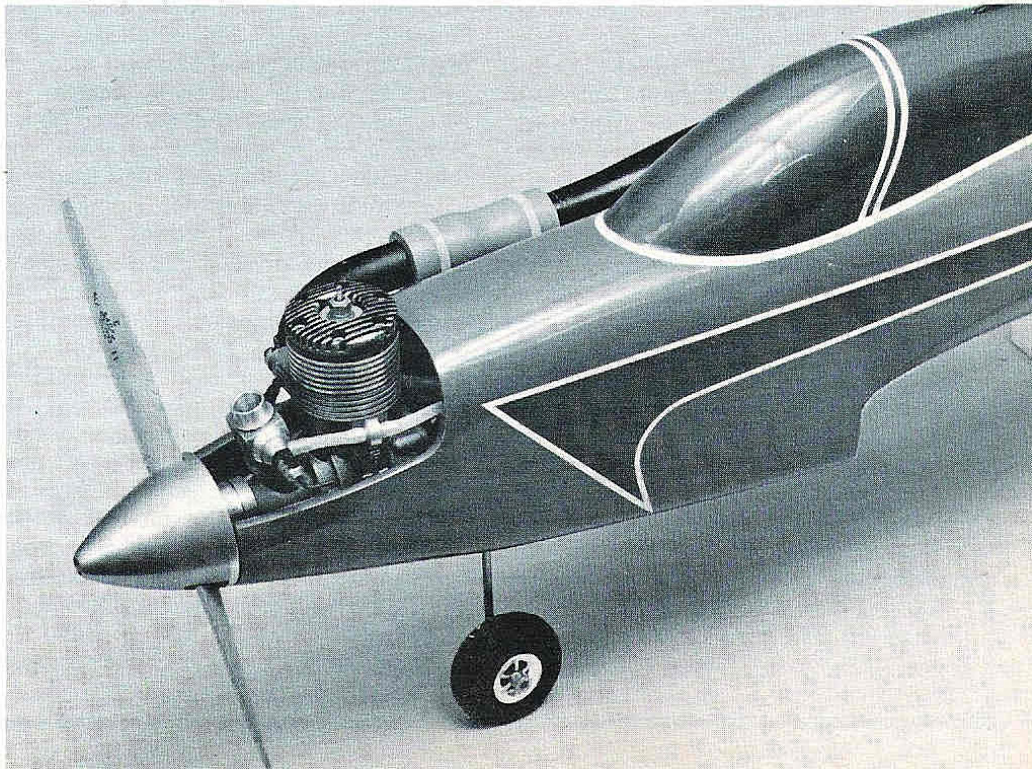
The canopy was the last thing to be decided upon; I prefer wooden canopies because finishing them is easier and less trouble.

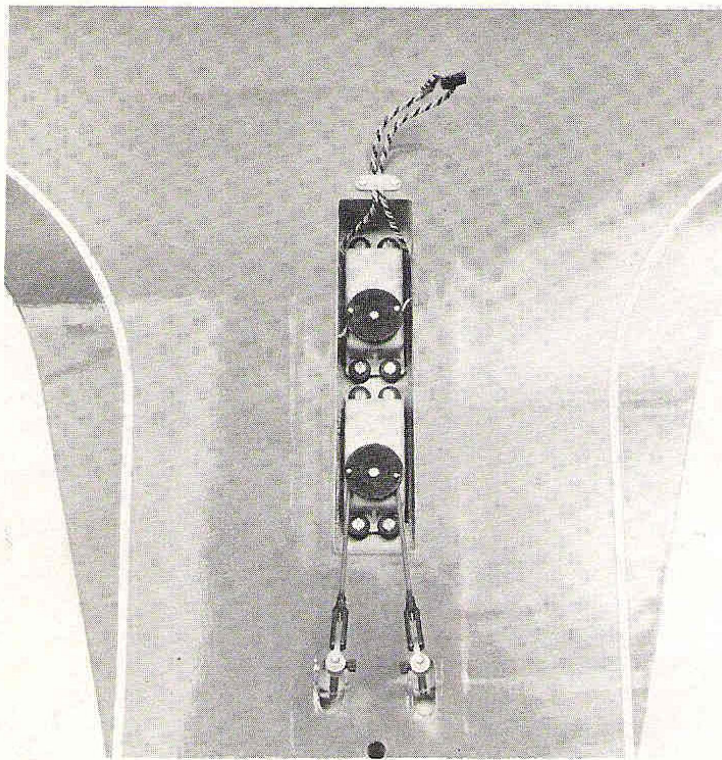
Now that I have explained to you the reason for designing the Deception, let me explain some of my building techniques.

I always start by building the wing. First, cut cores by using the templates and dimensions on the plans. Next, sheet the wing, using  $\frac{1}{16}$ " balsa. I use Hobbypoxy Formula 2 epoxy to glue the skin to the wing. A thin coat of glue, squeezed on the wood, is all that is needed to hold on the skin. I have found this to be the best method of gluing skins, as the skin can't lift and the wing won't warp. Simply place the wing back in the outer cores and place on a flat surface with weight on top of them. After the wing is sheeted, cut the excess balsa from the root and tip. Now trim the leading edge. The leading edge should be the same thickness at the root and tip. This

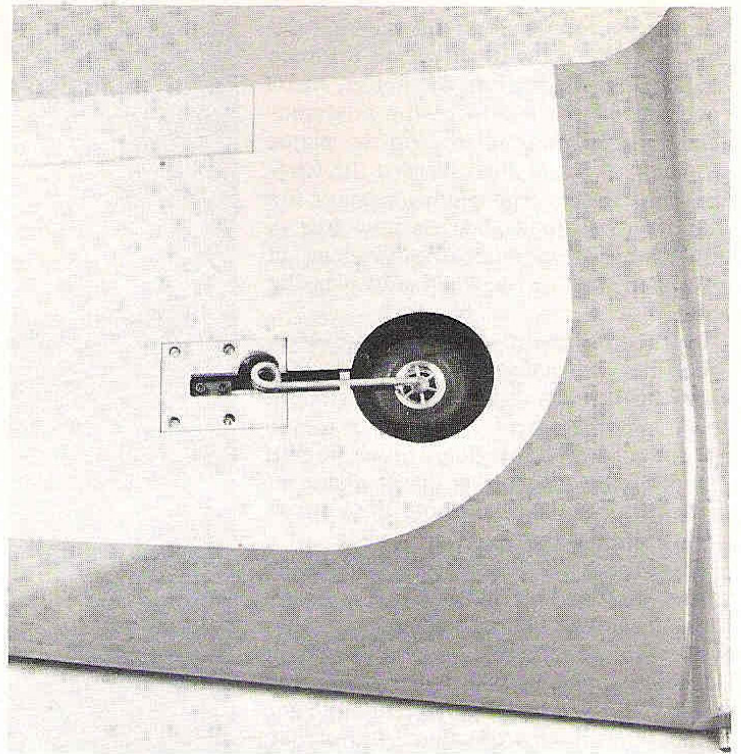
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Close-up view of the Rossi .60 installation plus tuned pipe—note the superb finish.

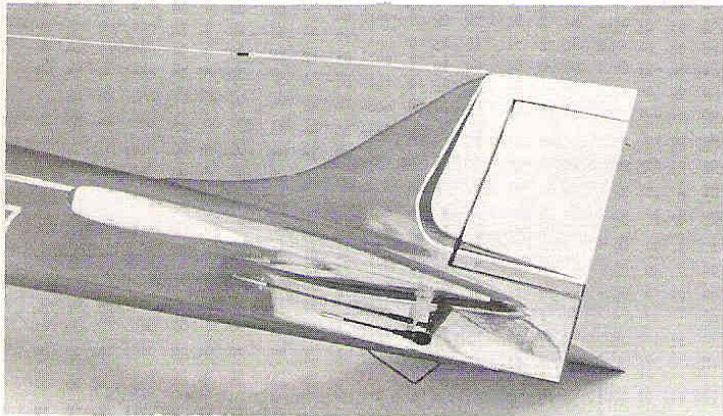




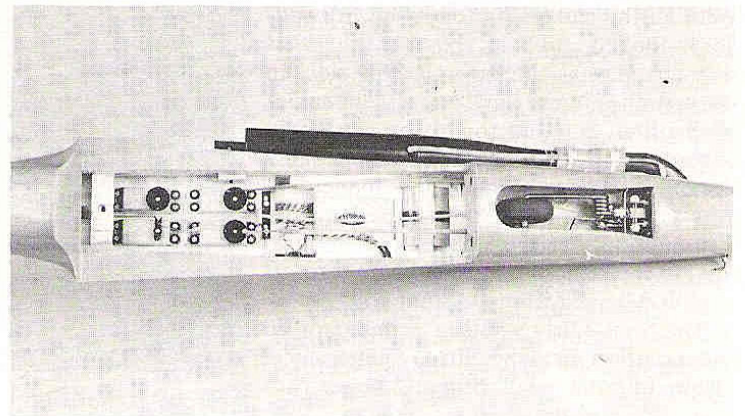
View of the center section of wing showing retract, aileron servos.



Tidy main gear installation uses Pro Line Retracts to advantage.



View showing radio installation, nose gear and muffler pressure.



Aft end, showing elevator, rudder hookup; small fin, large rudder!

## THE DECEPTION . . . CONTINUED

PHOTOS: ED SUSZYNSKI

is very important, as the constant leading edge plays an important part in the locking-in of the aircraft. Trim the trailing edge, glue the leading and trailing edge on and sand to shape. Tack-glue the ailerons to the wing and sand to shape. I prefer to have the trailing edge on everything  $\frac{1}{16}$ " to  $\frac{3}{32}$ ". I have found that sharp trailing edges are sensitive around neutral, where blunt ones are very soft. Also, I don't round the trailing edge: I leave it square.

Pop the ailerons off. Now make the retract cutouts. The wing should be ready to glue together. I use 1" of dihedral under each tip. After you glue the wing together, it's now time to make the torque rods.

Cut the ailerons as shown on the plans. Glue the center of the aileron with the torque rod to the wing. Cut the hinge slots.

Glue the wing tips on. At this point, I once again tack-glue the ailerons on; this is so that, when you sand the tips, the ailerons will line up perfectly.

Make a cutout for the aileron and retract servos. The wing should be ready to cover.

It is time to build the fuselage. First, cut out the sides and bulkheads. Lay the top block on a flat surface. Draw a centerline down the top block and bulkheads. Glue the bulkheads in place. Hold the sides up to the bulkheads and bring the two together in the back on the centerline. Trace along the inside of the sides, from the third bulkhead to the back. This is so you have a reference line when gluing in the triangles. Glue the triangles in. I use Testor's model airplane glue to glue anything that is balsa to balsa; I find it strong and light, and it sands well. For everything else, like plywood, foam, etc., I use 5-minute epoxy. Now glue the sides on. Glue in the tank floor and the reinforcing triangles around the bulkheads. Glue the bottom triangles and bottom on. You are now ready to mount the wing. There are two methods—the three-bolt method or the "two dowels in the leading edge and one bolt" method. Either method works fine, and it is the builder's preference. Now tack-glue the  $\frac{1}{2}$ " bottom block on. Build the bellypan and tack-glue it to the fuselage.

Bolt the engine mount to the fuselage and the engine to the mount. Taking the bottom nose block, hollow it so that the mount and engine have clearance. Glue the block to the fuselage. Glue the  $\frac{1}{16}$ " plywood spinner ring on. Put the spinner on the engine and trace around the spinner. Remove the spinner, engine and mount. Tack-glue on the top nose block, shape and sand the fuselage.

Once the fuselage is sanded to shape, you can remove the top nose block, bellypan and  $\frac{1}{2}$ " bottom block. Now you can make the necessary cutout in the  $\frac{1}{2}$ " bottom nose block for the retract and wheel. Once this is done, you can final-glue the block on the fuselage.

Put the engine and mount back in the fuselage and hollow it to fit the engine, as necessary. Once this is done, final-glue the top nose block to the fuselage. At this point, the fuselage should be ready to cover.

Now is the time to build the stab. First, cut cores by using the templates and  
(Continued on page 94)

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ly precut and goes together easily. Formers F3 and F4 are predrilled to receive the cabane and assure correct alignment. The sides are comprised of enough butt- and edge-joined pieces of  $\frac{3}{16}$ " x 3" x 30" to keep five troops of Boy Scouts in hand-launch glider wings for a year. Again, directions on setting up the fuse sides are clear, and if a little extra care is used, the heavier, stringier, and stronger pieces can be used in the front. The fuse was assembled over the plans and, by the judicious use of a few saw cuts, several yards of masking tape, and some large "C" clamps, the required taper was forced into a stubborn pile of lumber. The thing really started to take on some shape after the top deck was added,  $\frac{1}{8}$ " sheeting in front and  $\frac{1}{8}$ " x  $\frac{3}{8}$ " stringers aft of the cockpit. I did deviate from the plans at this point and added a  $\frac{3}{16}$ " x  $\frac{1}{8}$ " spruce cap to the top of each stringer, as I knew the balsa would be prone to damage, particularly in transport and handling. The  $\frac{1}{8}$ " sheeting in the front of the fuse behaves well if soaked until soft and held in place with a good combo of masking tape and a pound of pins. The side stringer of  $\frac{1}{8}$ " x  $\frac{3}{8}$ ", tapered and trimmed front and rear, is the final touch that transforms the fuse from an ugly box into a homely box. This stringer changes the cross section into something with a round top, diamond sides, and a flat bottom, once covered. The bare fuse was sanded, covered with polyester coat lining, and given a few coats of clear dope. The coat lining is a suggestion from the "grapevine" and works well—the stuff is even shrinkable—I don't know how much—but I applied it dry, much as if using nylon, and then brushed it lightly with a heat gun until drum-tight. Its best features are that the stuff looks like fabric, takes dope and paint well, and is dirt cheap.

The fuse was finished with several light

coats of Perfect black enamel. Again, this looked to me like 1933.

At this point, we moved a small bench into the middle of the shop, placed the fuse on it, and proceeded to assemble, fit equipment, and add a few goodies which transformed an ungainly series of pieces into a flying machine. There was no problem installing the radio gear. A set of "N" struts was made up, and flying wires were added per the scale drawing in the kit. This really gave the old girl some class and, at that point, I started making full-scale sounds. Finally, all the details were finished, everything worked, and the thing even balanced correctly without—get that, WITHOUT—any tail lightener. I'll give the Suevia some credit for that, as well as giving it to the good wood selection in the kit.

On a Saturday in May, the sun finally decided to shine, and the old R/C Editor and I could get together for the usual picture-taking and test-flight initiation. As the saying goes, she flew right off the board, albeit with full down-trim and a lot of concern for the sound that 21 lbs. of errant model could make. When we appeared at the field, all activity for the day, except for that involved in getting the Gere in the air, seemed to stop. Enough help, advice, and warnings came from the "peanut gallery" to get a 727 pre-flighted. The Suevia had not been run extensively prior to going to the field, and it took a few minutes to get it going and to make the usual adjustments. As stated earlier, the friendly nature of this 25 cc is a pleasure and, despite the size, the roar is not of the cardrum-shattering type common to the average 60, even without a muffler. We did fly the model without a muffler several times, as a hedge against overheating, which probably wasn't necessary. The engine handled both a 20/6 and an 18/6 prop very well, with the

ship flying at scale speed, and full power required only for takeoff.

The first flight was a surprise in that the ship's tail came up in what seemed to be five feet, the ship was airborne in what seemed to be 15 feet, and it was 50 feet in the air before the edge of the field was reached. A punch or two of down-trim, back on the throttle, and now we had a black and orange thing of beauty. Since the initial flight, the elevator push rod system has been revised, and I'm going to go to cables in the near future. I'll probably reach a point someday where snap rolls, Cuban eights, and all that stuff will be attempted, but for now, gentle circles, shallow dives, and very, very slow rolls are enough. The thing will probably stay together O.K., but the size is still awesome. All controls are responsive, although turns within the county require judicious use of aileron and rudder. Looking at this gal cruise by on a sunny day, 25 feet in the air, about 75 feet away, causes a thrill that makes having slaved over 15 lbs. of parts worth the labor. Bud Nosen, you're a prince!

I stated earlier that one has to put building these large models into perspective, and that extra amounts of the usual talents expected of all model builders are called for. I must stress that, although the basic structures are simple, these models are NOT for the inexperienced; a few minutes' thought will make this clear. Just the matter of safety is a major consideration.

I will heartily recommend large models for the aging crew (of which I'm a member); these are helpful for nearsightedness (building and flying). After a while, they don't even look big and, as a final word, if you live in a cottage or an apartment, forget it! I've been building models for well over 40 years, and I'm sure this one contains as much balsa as all the others combined. Now for the J-3—my most difficult decisions will be—wheels or floats, clipped wings or standard? ■

## The Deception

(Continued from page 36)

dimensions shown on the plan. Next, sheet the stab, using the same technique as the wing. The stab is built in much the same manner as the wing. If you had no trouble building the wing, the stab should be a cinch; so I won't go into details on the building.

I have found that the aircraft flies best with no anhedral. I have had Deceptions "with" and "without" works best. So, don't mess up a good thing, just so you can say you have the "in" thing on your aircraft!

The fin and rudder are made from medium  $\frac{1}{2}$ " sheet. I only round the leading edge of the fin, and taper the rudder from the leading to trailing edges. The canopy is made

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from a block. Cut the block to shape and then sand to shape. I hollow the inside of the canopy to save weight.

At this point, the entire aircraft should be ready to cover; I will discuss my finishing techniques. Although everyone has his preferences, I feel my method is as light and durable as any.

Start by covering the wing, fuselage, stab, wing, canopy and bellypan with 3/4 oz. glass cloth. Instead of using resin to apply the cloth, I have found that substituting K&B's clear Superpoxy makes for a lighter and more ding-resistant finish. Note the ailerons, elevators and rudder are not glassed. I put only two coats of resin on the surfaces, as I have found that glassing them causes them to have a tendency to warp. Now that you have covered the aircraft, sand the edges with #150 garnet paper. Brush another coat of clear Superpoxy over the glassed areas. After the Superpoxy has dried, put a coat of K&B Superpoxy primer and brown micro-balloons over the glassed area. Mix the primer and balloons to a consistency so that you can brush it with no problems. All the clear and primer to this point has been brushed. I must warn you that, if you don't like to sand, this isn't the finishing method for you. Now sand the micro-balloons and primer. When you are finished sanding, the only primer and balloons you should see would be where the material has filled the glass grain and pin holes.

It is now time to final-assemble the aircraft. Start by making the wing fillets. The base of the fillet is 1/32" plywood, and the fillet is made from Southern R/C's epoxy and micro-balloons. This makes for an easy-to-work-and-sand fillet material. Next, glue on the bellypan and make the fillets. Now final-sand the wing and bellypan fillets.

Glue on the stab and fin and make fillets, and sand. Glue on the canopy, make fillets, and sand.

Now spray a coat of Superpoxy primer on the whole aircraft. Sand the primer and apply another coat. All the sanding to this point has been with dry paper. Final-sand the entire aircraft with #600 wet-dry paper. I sand it dry.

At this point, the aircraft should be ready to paint. Spray on the base color and trim. I like to put a coat of clear over the entire aircraft, for an added appearance factor. I wet-sand the entire aircraft with #600 wet-dry paper and then spray a coat of clear.

There you have my finishing method. The entire method uses nothing but K&B Superpoxy paint and primer. This way, you are assured of a finish where everything is compatible.

Now it is time to install radio, retracts and engine. When the aircraft is finished, it should weigh about 8 1/2 lbs. to 9 lbs. dry. I have flown Deceptions ranging in weight from 8 lbs to 10 lbs. dry.

Now that your Deception is ready to fly, make the necessary preflight checks. Make sure the surfaces are neutral and everything works in the right direction. Check the balance.

Let's go fly! After five to 10 get-acquainted flights, it is time to trim the plane out. First, trim it to track loops perfectly. If the plane is free of warps, it should take wing tip weight to make it track perfectly. I trim for loops by doing three insides in front of me, noting if the plane comes in or goes out. If the plane goes out, it needs weight on the tip closest to you; if it comes in, you need weight on the tip farthest from you. I have found that, if you trim a plane to do perfect insides, it will also do perfect outsides.

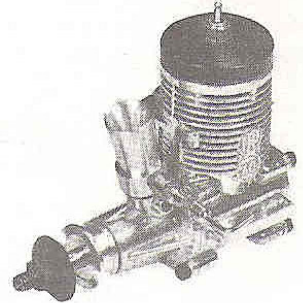
It is time to trim for rolls. I start by setting the plane up to do three rolls in 5 seconds with full stick deflection. We must check to see if the differential is right. I do that by flying the plane away from me and letting it climb at a 45 degree angle and roll inverted. If I roll it to the right, and the aircraft changes heading and, after the roll, is going right, this



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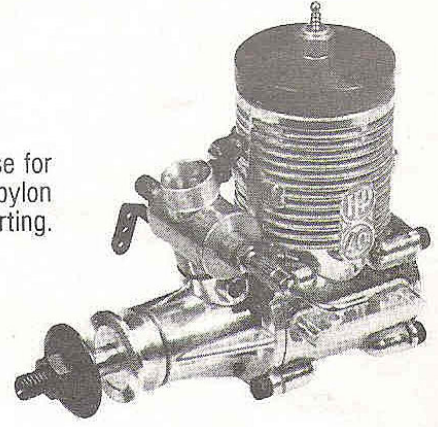
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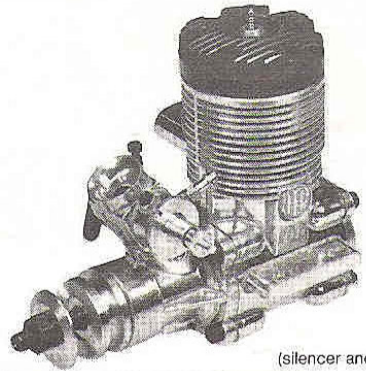


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means that the left or down aileron has too much throw. If the aircraft changes heading and is going left, then the right or up aileron has too much throw. I make all of my adjustments by drilling holes in the servo wheel. If you roll right, make all your tests to the right; if left, then, to the left. I have found that, if you can make the aircraft roll axial when going away from you, it will roll axial, whether it is level, vertical, or in any other attitude.

Now that your aircraft rolls axial, you can trim it to do point rolls. Start by flying along and giving full aileron roll to the inverted position. If the nose drops drastically, then the aircraft is nose-heavy and needs tail weight. When the center of gravity is perfect, the aircraft when rolled inverted should take only a slight amount of down to maintain attitude.

Next fly along and do a four-point roll. Note on the first and third point if the aircraft has a tendency to pull to the top or bottom of the aircraft. If it pulls toward the

top, this can be corrected by cranking up into both ailerons. If it pulls toward the bottom, this can be corrected by cranking down into both ailerons.

Once you feel you have your aircraft trimmed, go back and do the above steps again, making sure it is trimmed out perfectly. It takes 50 to 100 flights to correctly trim an aircraft. It is impossible to do it in one afternoon; it will take five to 10 flying sessions to correctly trim an aircraft. It may sound like a lot of work, but when you are done, you will have an aircraft that will do any and every maneuver in the book.

Well, I have given some of the thoughts, ideas, and reason behind my Deception. A lot of thought has gone into the aircraft over the past three years. I guarantee that anyone who builds a Deception won't be sorry. I only ask that you follow the plans and directions. If you make any modifications to the aircraft, and it doesn't fly right, don't blame me! ■