

The replicated Simla prototype was constructed with a mix of traditional and modern build, finish, and setup methods. Flight tests proved that sealing the hinge gaps reduced trim issues.



A missing link in the RC precision aerobatics community flies again

THE SIMLA WAS RC pioneer and legend Ed “Kaz” Kazmirski’s boldest and most ambitious design. Named after a town in the Himalaya Mountains in Asia, it was also the last of his Taurus series, incorporating everything he had learned throughout the design’s four-year evolution. In 1965 that was a giant leap into the unknown world of large-scale RC Aerobatics (Pattern) airplanes, decades before big models would be commonplace.

The Simla was an experimental, one-of-a-kind effort employing out-of-the-box thinking at a time when aircraft design was as much intuition as scientific. It featured adjustable high-, mid-, and low-wing positions; adjustable dihedral and stabilizer incidence; and, best of all, an early form of plug-in wings in an era when dowels and rubber bands were holding all other models’ wings on.

When the Simla debuted as part of a back-cover advertisement on a popular aeromodeling magazine, those of us who were around (I was 14) viewed it as “very cool.” It attracted brief national and international attention.

But unless you lived in Chicago, Illinois, and were a member of Kaz’s club, or traveled the contest circuit that year, you

Photos by the author



The original paint scheme was duplicated with polyurethane paint from Radio South. All radio equipment is Spektrum and the engine is an O.S. 91AX.



The high aspect ratio of the wings is obvious. Dihedral and slope of the vertical stabilizer effectively help hold the model on heading through Senior-style Pattern maneuvers.

A man in a green polo shirt and blue jeans is kneeling on a grassy field, holding a large red and white model airplane. The airplane is a high-wing biplane with a propeller at the front. The man is looking at the airplane with a focused expression. The background shows a line of trees under a clear blue sky. The top of the page has a decorative border with red and black diagonal stripes.

Ed Kazmirski's **Simla**

by Duane Wilson

The author imitates the pose with the original Simla that was featured in the World Engines ad published more than two generations earlier.



What Started *It All*

Little did those who wrote a routine aeromodeling ad that was printed in August 1965 realize that 45 years later modelers would be hanging onto each word of it in an effort to obtain every last shred of information about Ed Kazmirski's Simla. But that's what happened.

It is one thing to want to reconstruct the Simla when you are looking at that beautiful photo in the ad, but another to be able to do it. Plans, sketches, or at least good top- and side-view photos were needed to make those measurements meaningful when trying to figure out the scores of other dimensions that were required to build an accurate model.

Friends and fans converged, and the surprise information trickled in. "Our assembly of internationals is on the verge of bringing a great RC mystery to life," claimed project engineer Jeff Petroski in April 2009. After a year and a half, they finally did it! **MA**

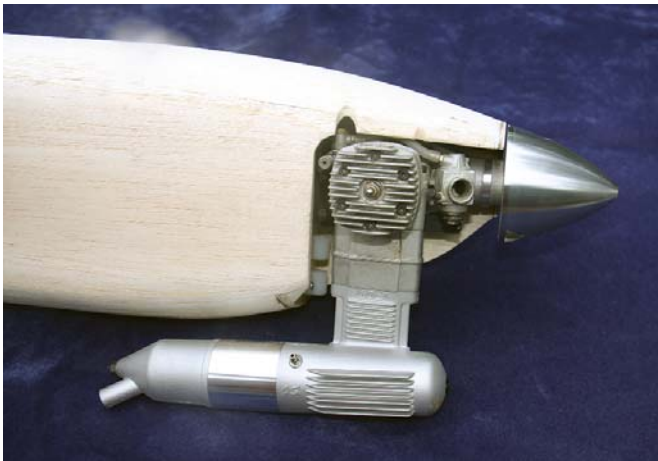
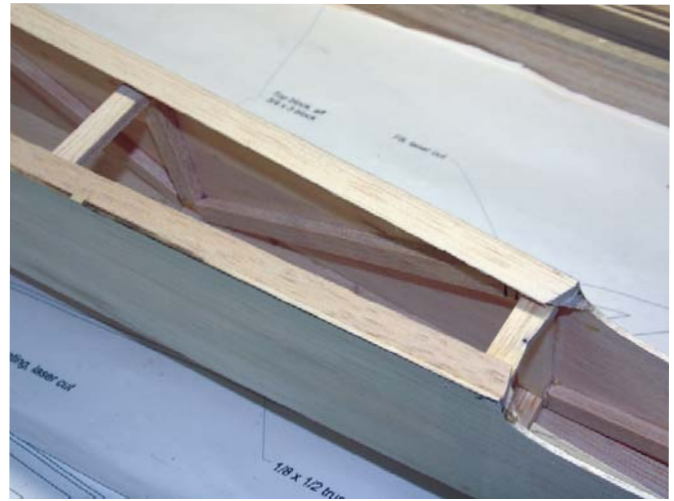
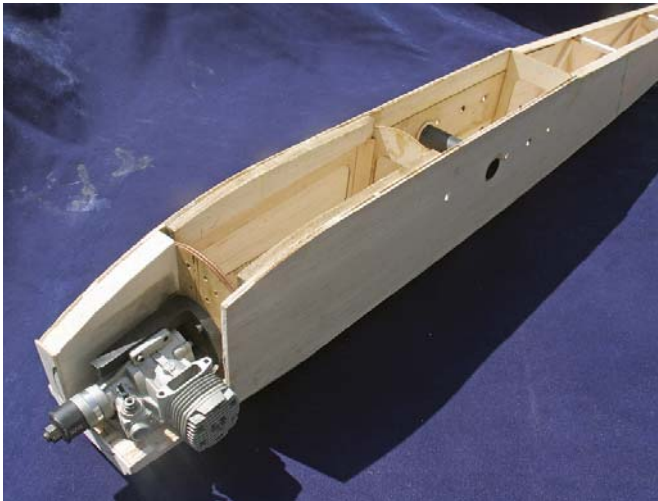
—Duane Wilson



Above: The fin and rudder are built up from thick balsa. Sheeting will cover the fin and rudder once the airfoil shape is formed using a sanding block.

Below left: The fuselage is a "box" form, with layered sides of balsa and various grades of plywood. Plan accordingly and drill all of the firewall holes before its installation.

Below: Triangle stock is located in the corners, and the "box" is rounded once all the sides are capped. The truss structure helps keep the fuselage sheeting from twisting.



An O.S. muffer extension is used to clear the stock silencer from the fuselage. A Tru-Turn spinner is an appropriate modern touch to this vintage RC Pattern-legal design.

Kevin Clark uses a laser level meter to fix the fuselage vertical so that the vertical fin can be secured in place.



The stabilizer/elevator is built as a whole and fully sheeted before cutting away the elevator and adding the stabilizer TE and the elevator LE.



A laser-cut parts pack is available from Home and Hobby Solutions (Jeff Petroski). A fixture holding 1/4-inch metal rods aligns the ribs located over the plans sheet.



Far left: The top balsa sheeting is added, and then the build tabs can be removed and sheeting the lower surface can proceed. The modern wing-tube mounting system is a welcome change from the original.



Near left: The overall model should be laterally balanced. A small plate has been added to seal the ballast location.



Above: The Simla can be painted identical to the original. Weight savings is considerable when iron-on film covering is used.



Left: A late design change included a reduction to the rudder slope. The AMA plans reflect this correction.



Test pilot Kevin Clark was the first to rotate the Simla off of the grass. It is predictable at all speeds.



Simla

Type: RC sport

Skill level: Intermediate builder; intermediate pilot

Wingspan: 96-102 inches

Wing area: 1,326 square inches

Length: 73 inches

Weight: 10.5 pounds

Engine: .61-.91 two-stroke

Construction: Balsa and plywood

Finish: Polyspan and polyurethane paint or heat-shrink film

Other: 7/8-inch wing tube/spar; 2 3/4-inch spinner; 14-ounce fuel tank, 3-inch main wheels, 2 3/4-inch nose wheel



Kevin Clark brings the author's Simla back to the test-flying location while Jeff Petroski waits his turn for a flight. This model grooves!

wouldn't see it again. The Simla lived a relatively short, sometimes difficult life, undergoing two modifications before competing in the 1965 Nats.

Kaz told me shortly before his passing in December 2007 (covered in the October 2007 *MA*) that the Simla suffered a freak accident before it even flew, when a photographic floodlight came crashing down on it during a photo shoot. The resulting repairs resulted in an increase of 12 performance-robbing ounces in an era of .61 two-stroke engines and smaller airplanes. The model still flew well, but it wasn't as competitive as it needed to be to win.

The final disappointment for Simla came after the end of the flying season. When Kaz remembered it a few months after moving to a new home and went back to retrieve it, the aircraft had mysteriously disappeared from its storage area in the crawspace of the house. Shortly afterward, Kaz withdrew from AMA competition and then from RC altogether.

The Simla was gone but not forgotten. In a "vintage Pattern" article I wrote (published in the July 2007 *MA*) 40 years later, it was shown in passing as part of a sidebar.

Readers showed unexpected interest in the big, beautiful design, and many asked about the availability of plans or a kit. *MA* Editor Michael Ramsey also showed interest; he offered space for a construction article if we ever reproduced Kaz's beauty. The proposition came in the fall of 2007, and it was irresistible.

The only problem was that the Simla couldn't be reproduced. Kaz built it using his knowledge and skill—without plans. I had asked him about sketches, but if there ever were any, they were long gone.

Like a good mystery, there were tantalizingly few clues and "givens" and many questions. I didn't want to simply build a 150% Taurus, because the Simla design, although closely related to the Taurus, had been refined and changed. But how exactly?

After Kaz passed, his two Tauruses and assorted modeling possessions were put up for auction (see "Kaz!" in the August 2010 *MA*). I came to know the auction-house owner well enough to ask him to contact me if anything else having to do with RC turned up.

A few months later he called saying that he found some old newspaper clippings and a handful of Kaz's photos—including a few of the Simla. This was like finding buried treasure.

Excited to see what the auction-house owner had (since new pictures of the Simla were valuable), I eagerly awaited the arrival of the package. A huge envelope finally came, and at the bottom were seven tiny 3 x 3-inch black-and-white prints.

RE-CREATING KAZ'S INTRIGUING AEROBAT

One evening while working on the design of the Ed Kazmirski Orion, I decided to check the "Ed Kazmirski's Taurus" Classic RC Pattern Flying thread on the RC Universe forums. I've known Duane Wilson for five or six years and was interested to see that he mentioned the Simla. I couldn't believe what I was reading!

Duane and others were discussing lost information and pictures of Kaz's Simla. I had mounted my own investigation quite a few years ago and came up empty-handed. The Internet and online forums were uncommon at that time. I offered my assistance and was on the "team."

I have modified and replicated several models, but the Simla has proven to be the most challenging. My other projects included drawings and/or plans to reference. This one had only grainy magazine pictures, 3 x 3-inch photos from the Kazmirski estate, and opinions of dozens on the forum.

Working together on a long-term project was not foreign to Duane and me, since we had collaborated on the King Altair. The main influence on the Simla prototype design came from the team of internationals on the forum. It took quite a bit of interpretation, cooperation, and negotiation to devise the current design.

Being an engineer, mechanical design and CAD work come natural to me. Nevertheless, it took several months to design the Simla. Eventually three prototype kits were laser-cut and assembled.

Kevin, Duane, and I built these models during the course of quite a few months. We kept in touch via e-mail with our observations and communicated design changes via pictures and corrected drawings, while further ironing out design details. In some cases, portions of the aircraft were cut up and reassembled to facilitate needed modifications. Additionally, I wrote the instructions while Duane busily continued researching and writing his article.

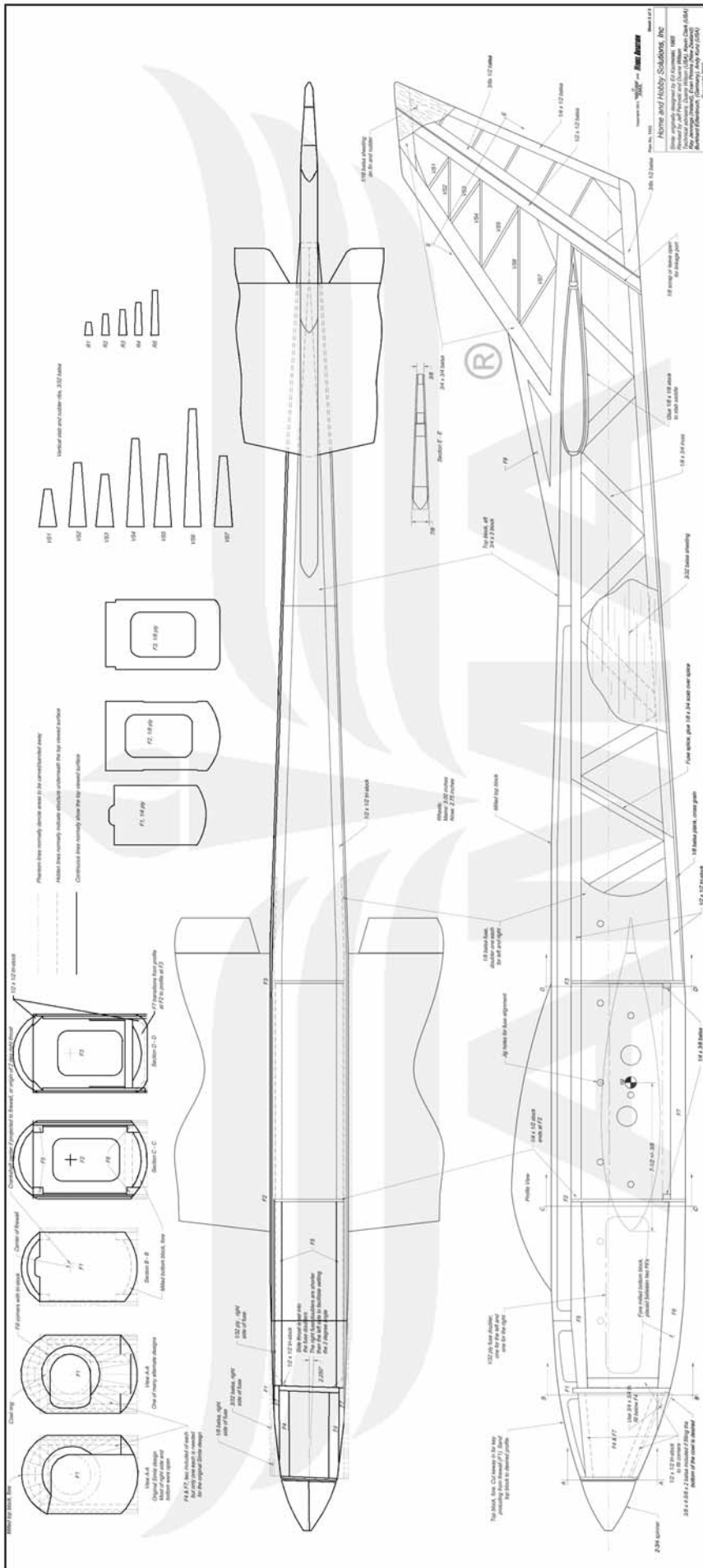
It has taken well more than a year to bring the Simla to this point. We have conducted the first test flights, and it was spectacular to witness one of RC history's most mysterious and sought-after airplanes taking to the sky after a 45 years.

Thanks to all who participated in resurrecting one of model aviation's greatest futuristic designs. **MA**

—Jeff Petroski



A current Chicago-area club member examines an old photo of Ed Kazmirski and the original Simla that was taken at that exact location 45 years ago.



The size of the photos was disappointing, but I consoled myself by saying that at least the number of known Simla pictures had doubled. I later learned that those tiny images were taken by a professional-quality camera with excellent resolution; things were starting to look up.

I studied the new photographs looking for something new, but most were the familiar posed pictures at a three-quarters angle—nice to have but useless for my purposes. Then I saw the seventh picture; it was a nearly perfect top view of Simla, balanced on a young assistant’s shoe.

I soon realized that this photo was the key and that it could be used to take accurate top-view measurements—if only someone had the right kind of software. Nothing that sophisticated was available.

The Simla Development Team: The “Ed Kazmirski’s Taurus” thread on RC Universe (RCU) documents the beginning of the Simla project on March 31, 2009 (page 46). Shortly after receiving the photos, as the unofficial team coordinator I laid out the framework for the feasibility of the project.

Knowing my own limitations, I posted an open invitation for interested individuals with the necessary skills for the project. The same international group of friends that proved to be instrumental in providing information for the study of Kaz’s Taurus took an immediate interest in the Simla and gladly offered their help.

Burkhard Erdlenbruch of Germany was instrumental in the project’s success. He had access to the necessary software for accurate photo measurements.

He also happened to be precise in everything he did and, as a bonus (as fortune smiled on us), was an expert in RC simulator technology. Burkhard inspired us with a “virtual” Simla that could be viewed from any angle and told us how it should perform long before it was built.

Ray Jennings of Belfast, Northern Ireland, and New Zealand’s Evan Pimm contributed previously unknown-about photos and data from their extensive archives of modeling magazines from the States and overseas. They served as general advisors and “wise counselors.” Others added valuable input, yet we still lacked that final critical member to put everything together and draw the plans.

Friend and associate Jeff Petroski, a vintage RC kit manufacturer who was experienced in computer-aided design (CAD), appeared on the thread approximately a month later, enthusiastic to help. The team was assembled. (See his sidebar.)

As Jeff began work on the wing plans, I made the first informal fuselage side view, pieced together from Burkhard’s measurements and enlargements of the photographs. When completed, I mailed the drawings to Jeff as the basis for the fuselage plans.

During the process we hashed out most of the questions we had and problems we faced

one by one, and we documented them on the RCU thread. An interesting discovery we made was that the Simla had undergone two wing modifications (as evidenced by different reported wingspans and aileron widths) during its life.

The wingspan was sometimes reported to be 102 inches and sometimes 96. At first we thought there must have been a mistake in the reports, but we eventually determined when the changes were made.

However, there is no record of whether or not the shorter wingspan was an improvement. Provisions have been made on the plans for both wingspans, and the builder can build to taste.

Each Simla team member contributed exactly what was needed—at the right time. Without this international group of friends, the project either would have failed or would have been much harder to complete.

Our Approach: This re-creation of the Simla was unusual compared to typical building projects, because we had to reconstruct it from a handful of photos and a scant description. Therefore, we had to make a number of decisions about how to approach the project.

First we decided to build the 102-inch-wingspan version with the wider ailerons, which is the one featured in the best-known photo. (See the sidebar.) Second, we had to decide if we wanted to duplicate Kaz's model in every detail or take advantage of modern advances in materials. We decided in favor of the latter.

Kaz used a slit maple block with bolts to grip an aluminum plug in each of the plug-in wings, but we used a carbon-fiber wing tube to save weight and for ease of construction. If you want to reproduce Kaz's original, contact us and we'll send you additional documentation.

The Simla you see in this article is close to Kaz's original, but it isn't the final version. Three of us constructed Simlas from a kit prototype. In areas where there was guesswork, each of us built the model slightly differently.

We carefully compared the finished prototypes to the photos, to see where adjustments to the plans drawings were necessary. The plans published here and the kit to be released in the future represent the latest thinking after the comparison.

We used everything available to re-create the most accurate model possible. In the case of the wing, we knew the dimensions and airfoil Kaz used. There is little doubt of its accuracy and that of the stabilizer.

However, the fuselage and fin were challenging because we had no direct side view to take measurements from and the fin area was not clearly visible. We had to make some educated determinations (guesses) after studying the best side view we had (one of the seven Kaz photos).

We had to make some changes in midconstruction as design problems became evident. The final test came after covering and painting while trying to duplicate Kaz's bold finish scheme; we found this to be the most revealing test to verify accuracy.

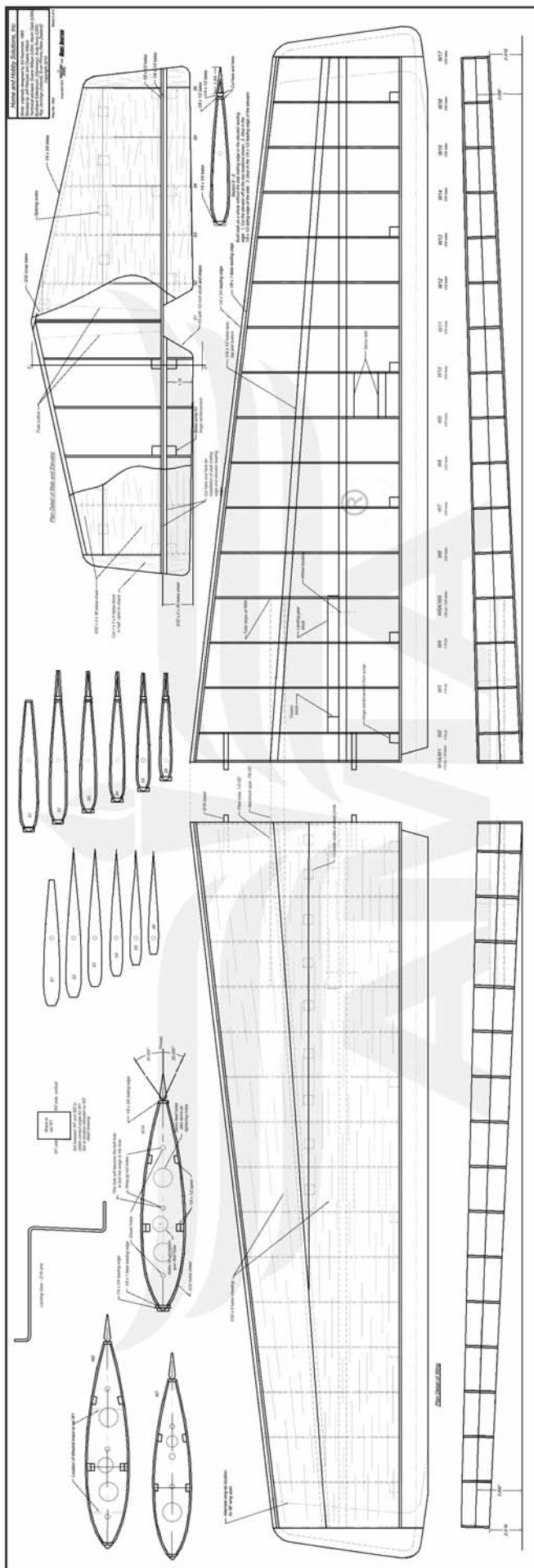
CONSTRUCTION

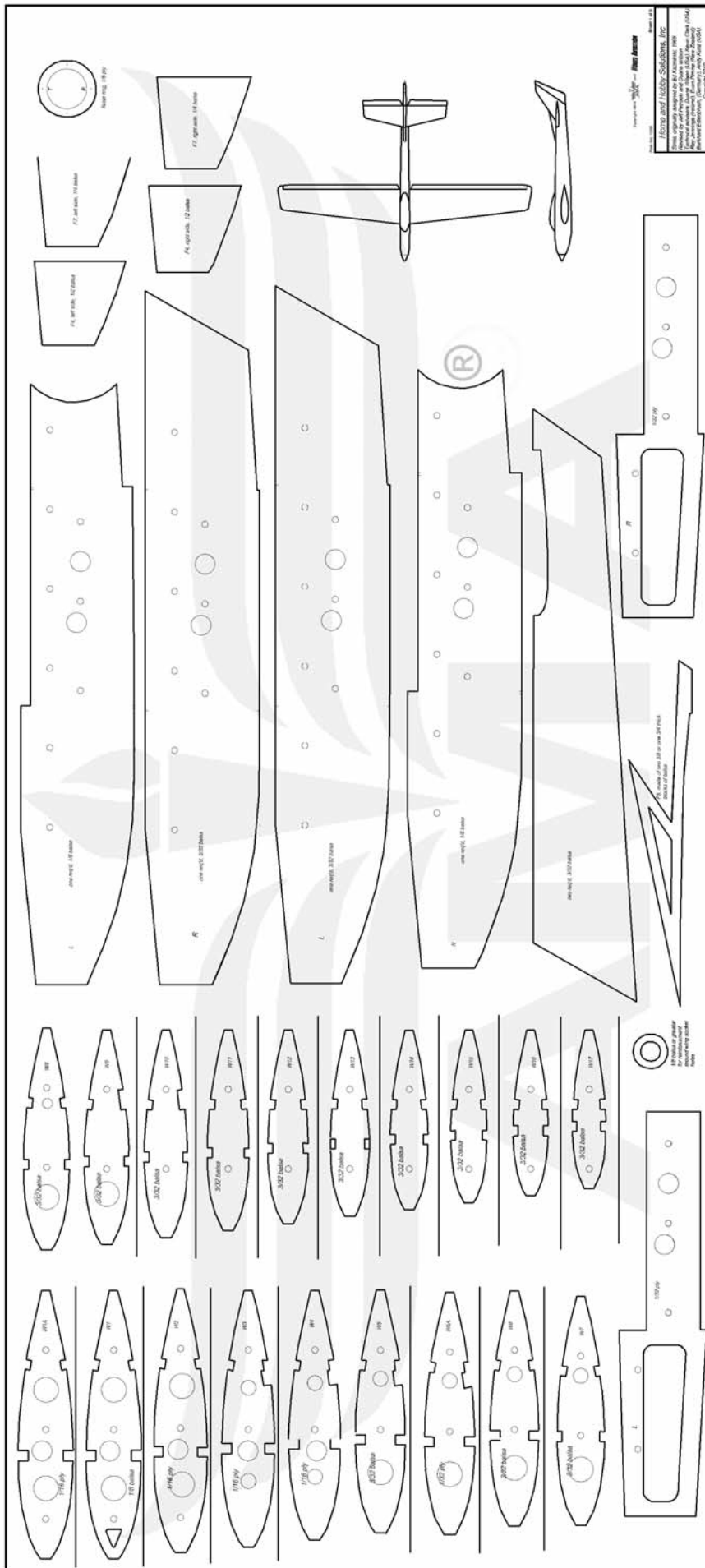
This build is straightforward and basic for anyone who has constructed a model from a kit, so I won't include individual steps. For those of you who opt for the kit when it becomes available, Jeff provides illustrated, detailed instructions.

The fuselage has alignment holes, if desired, and right thrust and downthrust are determined by placement of the thin plywood fuselage doublers. Using traditional building methods of the time, Jeff designed a box fuselage with hollowed balsa blocks for the top and nose sections rather than fuselage formers, as are seen in most modern ARFs.

With this method the fuselage looks square and "blocky" before sanding—unlike the sleek model to come—but that magical time finally comes when you get out the orbital sander with coarse sandpaper and (carefully) transform the bulky box into something that resembles an airplane. That transformation from square to aerodynamic is my favorite part of building a Pattern model fuselage.

The plug-in wing halves are assembled separately. Each wing rib has an alignment tab and the ribs are drilled for 1/4-inch alignment rods, to keep everything straight.





Proper dihedral is determined by a balsa spacer between ribs W-1 and W-2. There are also tabs and alignment holes for the stabilizer ribs.

Weight is an issue with aircraft this size, especially if you use a .61-size engine as Kaz did. He was careful in his wood selection, and without engine and radio his models feel as light as feathers.

If you are building the Simla from plans, be sure to select contest-grade balsa—particularly for the wing sheeting and balsa blocks. A kit with contest balsa would be too pricy. A carbon-fiber tube also helps save weight. The general rule is to save weight wherever possible to improve performance.

The way my airplanes last (or don't) is by using iron-on covering materials, which are easy to repair. But for this model I felt compelled to apply a traditional painted fabric covering in Kaz's traditional colors. I used a heat-shrink tissue-like fabric called "Polyspan," which is applied with nitrate dope. Use a spray bottle and heat iron to remove the wrinkles first.

I didn't have time for the traditional dope finish, so I chose Radio South's polyurethane "matched paints." They are coordinated with either MonoKote of UltraCote, or you can provide a sample to get any shade you want. These paints are expensive, but they work well and are fuelproof.

I had no quality painting equipment, so I opted for a simple Prevail spray system that is available at popular hardware stores. Two light/medium coats produced a beautiful shiny finish.

Avoid the urge to apply too much matched paint at once. It doesn't dry; it cures in 24 hours, and you can wet-sand and buff it if you detect runs or bug tracks.

Flying: After more than a year and a half, the moment of truth had come. How well would Simla fly?

I contacted Pat Hartness, who owns the Triple Tree Aerodrome near Woodruff, South Carolina (site of the annual Joe Nall Fly-In), to ask for permission to use his superb facility for the first flights, and he graciously agreed. The stage was set.

After fiddling with almost everything that could be fiddled with and taking as many preflight pictures as we could, we were ready. Expert test pilot (and builder of one of the prototypes) Kevin Clark taxied the Simla down the runway as I manned the camera.

There was that seemingly endless moment when the airplane was poised at the end of the runway, and then the engine came to life and the Simla raced down the runway. A few seconds later, all of the hard work paid off.

The first flight was conservative, making sure that everything was as it should have been. By the middle of the second flight the aircraft was tentatively testing its wings, doing what it was born to do: precision aerobatics.

The third flight was confidently spent entertaining a large group of electric-power

fliers who had invited us to join them for lunch and then fly with them from the main runway. Kevin put on an impromptu aerobatics show, receiving deserved applause after performing maneuver after maneuver that the crowd members called out, followed by a perfect landing.

The flight characteristics of the Simla resemble those of the Taurus. After all, Kaz often referred to the Simla as a “150% Taurus” that benefited from everything he had learned from several versions of the Taurus.

Kevin remarked that the Simla flew similar to Kaz’s second-generation Taurus 2, only better. Kaz had told me that he used to fly the Taurus and the Simla in succession; then he’d turn to the crowd of onlookers and say, “They fly ‘*Simla*’ to each other.”

Our Simla weighs close to 10^{1/2} pounds dry. Kaz was limited to a .61 engine, but we weren’t. We wanted adequate power for test flights, so I opted for an O.S. .91 two-stroke engine, which is interchangeable with the O.S. .61.

The Simla is well matched to the .91 engine size. It would also be an excellent

candidate for an equivalent four-stroke engine or motor. Someday I might be brave enough to compare performance to what Kaz used by switching to a .61, but not yet.

The “Simla Development” project was the most challenging, enjoyable, rewarding, satisfying, and fun undertaking I have ever attempted. It was a puzzle for which most of the pieces came together at the right time. I am honored to have worked in such a coordinated way with the “Simla Team” of talented aeromodelers (and friends) who freely donated their time.

The original objective of the project was to produce the most accurate Simla possible. After evaluating the prototypes, we are confident that the final design will be close enough that Kaz himself would have to take a second look. **MA**

Duane Wilson
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Sources:

RC Universe “Ed Kazmirski’s Taurus” thread:

<http://bit.ly/dEOpxC>

First mention of Kazmirski estate photos:

March 1, 2000 (page 42 post 1053)

First mention of feasibility of Simla project:

March 31, 2009 (page 46 post 1144)

First posting of Simla photos: April 13, 2009 (page 51 post 1262)

Simla kit (available in June 2011):

Home and Hobby Solutions

2076 Mountain Laurel Rd.

Lancaster SC 29720

www.homeandhobbysolutions.net

Polyspan:

Larry Davidson

(540) 721-4563

www.modelflight.com/larrydavidson.html

Radio South

(800) 962-7802

www.radiosouthrc.com

O.S. Engines

(217) 398-8970

www.osengines.com