



by Dick Sarpolus

Even though it's more than 50 years old, this design shows the proven good proportions of a basic CL Precision Aerobatics model.

*The*

*Easy*

## Frank Ehling's 1949 CL Stunter

I WAS LEARNING how to fly inverted 50-some years ago, and it wasn't going very well. I needed another airplane. A local older modeler had given me a stack of *Air Trails* magazines, and in the April 1949 issue I found plans for Frank Ehling's Easy. I crudely scaled up the plans from the page-size drawings and scratch-built my version.

That model is basically a 50-inch-wingspan profile, and to help with my

inverted flying, I added a single-strut wire landing gear with a wheel, on the top side of the fuselage. With the help of, I believe, a front-rotary O&R engine, and later a Forster or OK, and finally a Fox, I did learn to fly inverted.

Wanting recently to do some more CL flying, I got a copy of that April 1949 *Air Trails* article from the Precision Aerobatics Model Pilots Association (PAMPA). I have

always remembered the Easy as a good-flying airplane, and with nostalgia as another motive I decided to build a new one roughly 50 years after my first one.

I constructed the new model according to the original design, but I used some modern materials and technologies. I've flown it and I like it.



I did get to know Frank Ehling a bit through the years, later when he worked for the AMA, and I think he was way ahead of his time with this CL design. At that time, CL flying itself was fairly new and the glow plug had just come out in 1947. Inverted flying had only been around for a couple years, and flaps for Precision Aerobatics models (Stunters) were about to be introduced.

CL Stunt wasn't in its "golden years" yet. But Ehling's Easy had plenty of wing area, was light, and the proportions seem right to me. He designed the model because he wanted to make 24 CL Stunt models for Christmas gifts in December 1948. Wow, he was some gift giver.

*Air Trails'* three-page article didn't have much text; the building instructions were mainly in the photo captions. The page-size plans in the magazine were accompanied by a chart containing the specific dimensions for seven—yes, seven—different sizes to which the design could be built. This was to accommodate engine sizes ranging from a miniature CO<sub>2</sub> to a .65; the wingspans ranged from 12.5 to 50 inches. I built the largest version.

That wing has slightly more than 500 square inches, which I thought would be good for modern .35 power. I wanted to lay out accurate plans, and working from the magazine plans was interesting.

The easy thing to do would have been to enlarge the page-size drawing to the size I wanted, but it was noted that the drawing was not done to scale

and the chart should be used for the dimensions. That revealed some inconsistencies.

Adding the individual component lengths for the fuselage resulted in an overall length of 30.25 inches. However, the chart's fuselage length was 32 inches.

The airfoil in the drawing looked fine. But the photo captions indicated that the airfoil thickness was determined by the wing center block, which was determined by the engine-mount bearers, and the wing LE was 1.25 inches thick. Working with those factors wasn't going to provide a reasonable airfoil section.

In the end, I worked with the enlarged drawing and the chart dimensions to develop what I think is an accurate reproduction of Ehling's large Easy. I assume that my plans, and anyone else's from the article, would be legal for PAMPA Old Time Stunt (OTS) competition.

### CONSTRUCTION

When I built my Easy in the early 1950s, everybody was putting the bellcrank inside the wing, with holes in the ribs for the leadouts. Ehling's plans called for mounting the bellcrank on the bottom of the fuselage, with the leadouts supported by a guide

below the inboard wingtip.

Since the PAMPA OTS rules allow modification to the control-mechanism location, I assume that this modification is legal. Not that I cared about rules; I was building this thing for my own fun-flying.

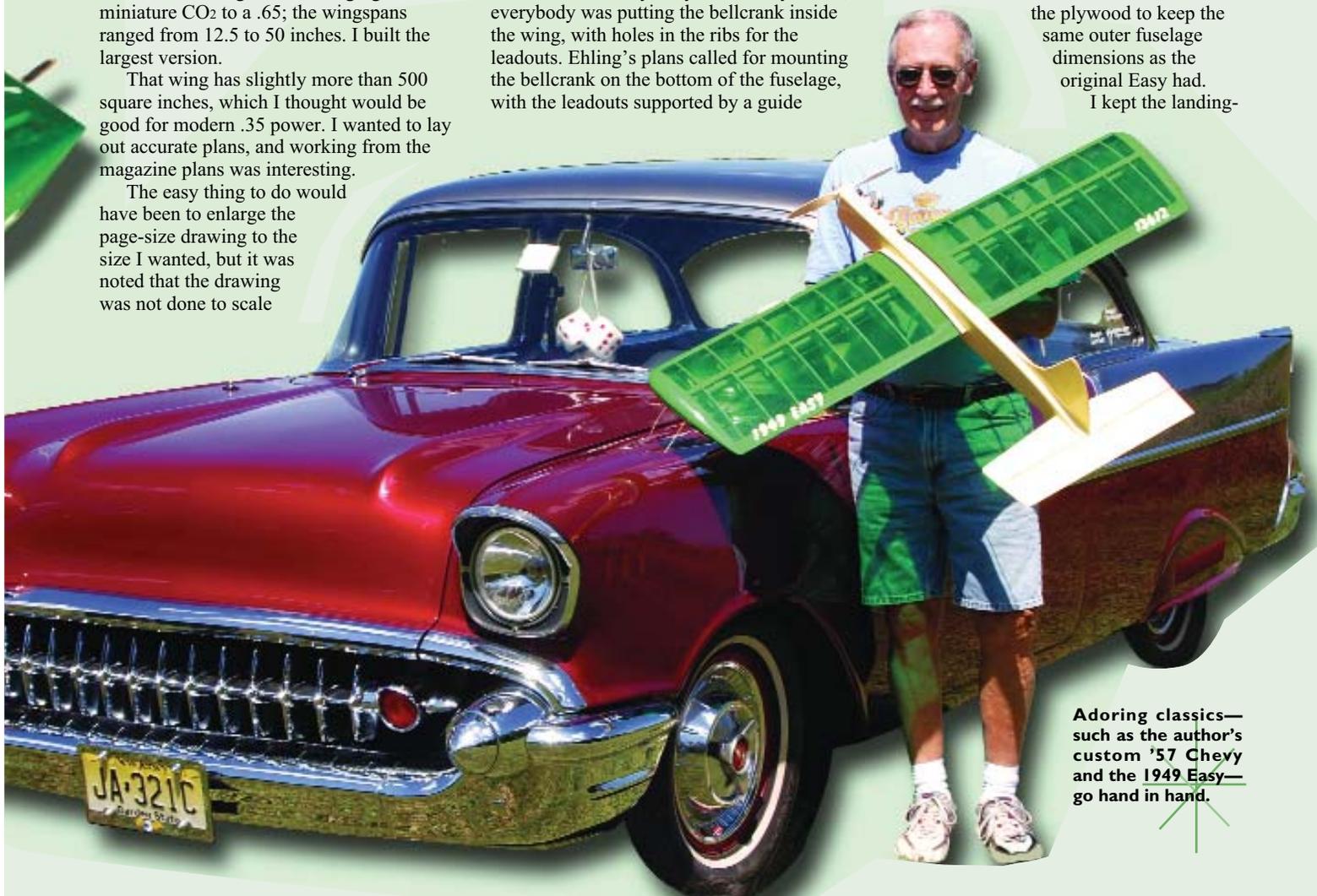
A structural modification I made was to incorporate two spars in the wing. It didn't change any outside dimensions, and I felt that the spars were needed for sufficient strength in an airplane such as this. Wingtips are shaped from balsa blocks; it's good to make wood chips and sawdust.

The assembly instructions called for building the wing with a center wood block and then adding the fuselage pieces around that block and the wing. Not that it wouldn't work that way, but I built the fuselage as a separate assembly with a hole in it through which to slide the wing.

I used 3/8 x 1/2 maple engine mounts, spaced to suit the power plant being used, with 1/8 plywood nose-section doublers, as in typical profile construction. But then I added

1/4 balsa on each side over the plywood to keep the same outer fuselage dimensions as the original Easy had.

I kept the landing-



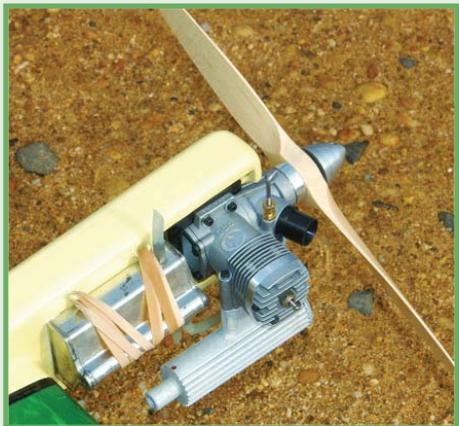
Adoring classics—such as the author's custom '57 Chevy and the 1949 Easy—go hand in hand.

The Easy is legal for PAMPA Old Time Stunt competition. Its flight performance with a modern engine is superior to traditional options.



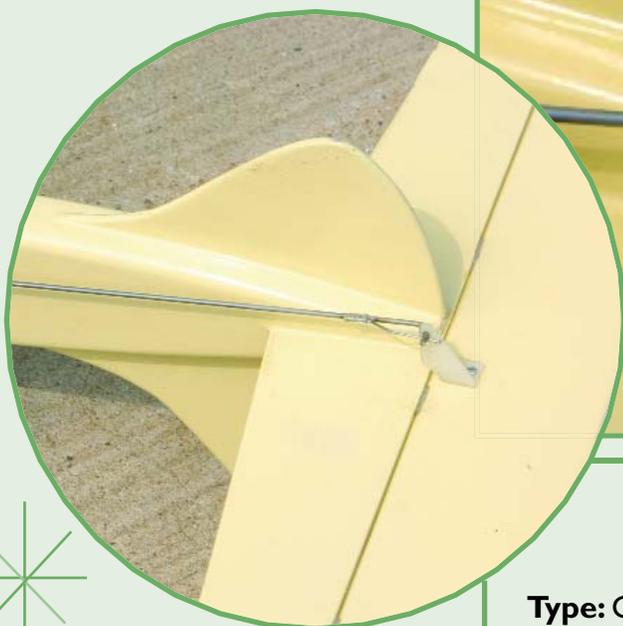
Left: The engine is a modern Thunder Tiger .36 Pro that has had the timing changed to suit CL Stunt flying and is fitted with a custom, lightweight tube-type muffler.

Below: The engine sits on a molded nylon shim plate for a few degrees of out thrust. The fuel tank is held in place with rubber bands.



**Below:** The  $\frac{3}{32}$ -inch-diameter wire pushrod running from the bellcrank to the control horn is supported with a fuselage brace made from a nylon control horn.

The Easy features traditional profile construction, a simple wing structure, and sheet-balsa tail surfaces. The wire landing gear, lightweight foam wheels, and subrudder has the model sitting at a good angle on the ground. This Easy is finished with a butyrate-painted fuselage and tail surfaces and transparent MonoKote on the wings.



## Easy Specs

- Type:** CL Old Time Stunt
- Designer:** Frank Ehling
- Origin:** April 1949 *Air Trails* magazine
- Skill level:** Beginner builder/pilot
- Wingspan:** 50 inches
- Wing area:** 530 square inches
- Weight:** 44 ounces
- Wing loading:** 12 ounces/square foot
- Length:** 34 inches
- Engine:** Thunder Tiger .36 Pro (modified for Stunt)
- Propeller:** Pro Zinger 11 x 5
- Construction:** Balsa
- Covering/finish:** Aircraft dope, heat-shrink film



gear location in the same place as on the original plans, but I have it removable in two pieces from the fuselage rather than building the gear into the wing. I figured I'd be removing the gear legs to straighten them after some poor landings.

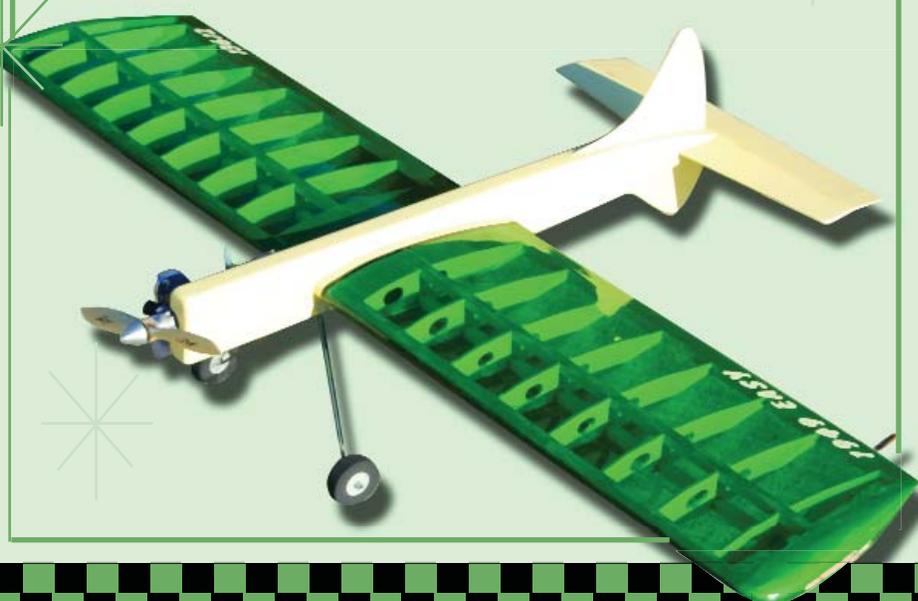
I had to shape the LE and TE balsa, but nobody said that would be easy. I used a standard 3-inch bellcrank and flexible leadouts and a  $\frac{3}{32}$ -inch wire pushrod with one support off the fuselage side. I did install an adjustable leadout guide as a nod to modern technology.

I used sheet balsa for the tail surfaces, as was done on the original. I don't know if Frank Ehling used rudder offset, but I put in  $\frac{1}{4}$  inch of offset with the rear upper rudder section.

Back in the day I used a lot of colored silk and clear dope to finish wings, with painted fuselage and tail surfaces. This time around, I finished the fuselage and tail surfaces with butyrate dope, but I went for transparent Top Flite MonoKote on the wings; it reminds me of the old clear-dope finishes.

I opted to use lightweight foam wheels. I had a stock of fuel tanks and used a profile type, which is held in place with rubber bands and J hooks, as in the old days.

**Flying:** I made the first few flights on this new Easy with an old .35 I had on hand. I omitted the muffler, for nostalgia I guess, but after noticing the engine shake, I figured





that engine technology must have progressed in the past 50 years. I like nostalgia and tradition, but not enough to fly with an old engine when better power plants are available.

For some modern power, I obtained a Thunder Tiger .36 Pro engine and a custom CL venturi, needle valve, and lightweight tube muffler from Stuka Stunt Works. The Thunder Tiger power plant fit exactly into the old .35 mounting holes.

I can understand that today's Schnuerle-ported engines with ball bearings and better materials are designed to suit RC, and changing the port timing, compression ratio, venturi, etc. would result in a better engine for CL Stunt. I was lucky to have a knowledgeable engine guy do the rework. Tom Hampshire, a New Jersey modeling friend, helped me a great deal by retiming the Thunder Tiger to suit CL use. Why not fly with a modern, CL-suitable engine?

The reworked .36 happily turns an 11 x 4 propeller and delivers its power precisely the way we need it to for CL aerobic flying. And I quickly learned that it's a pleasure to fly this neat, old model with an up-to-date engine.

Years ago I flew with a Hot Rock E-Z-Just large handle, but I guess my reflexes aren't what they used to be. To smooth things out, I put a longer control horn on the elevator and got an adjustable handle, set to 3 1/4-inch line spacing. I'm using 62-foot lines—much better for me.

It felt great to have that handle in my hand. Although my patterns are probably only recognizable to me, practice may help. I even looked at my old Mirror Meet flight pattern but put that scary one away for now. This stuff is fun.

**If you would** like a copy of the old *Air Trails* article about Frank Ehling's Easy, ask me; I'll send one to you. **MA**

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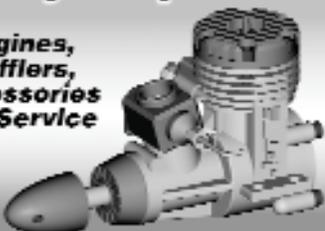
**Sources:**

PAMPA  
15107 SE 145<sup>th</sup> Pl.  
Renton WA 98059  
www.control-line.org

MonoKote  
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www.monokote.com

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