

# CX4 Cowling Trick

## Mold the cowling over the engine for clean lines and a perfect fit

Dave Thatcher

Building the CX4 has been an absolute delight for me. I have enjoyed working through the problems that have come to the sur-

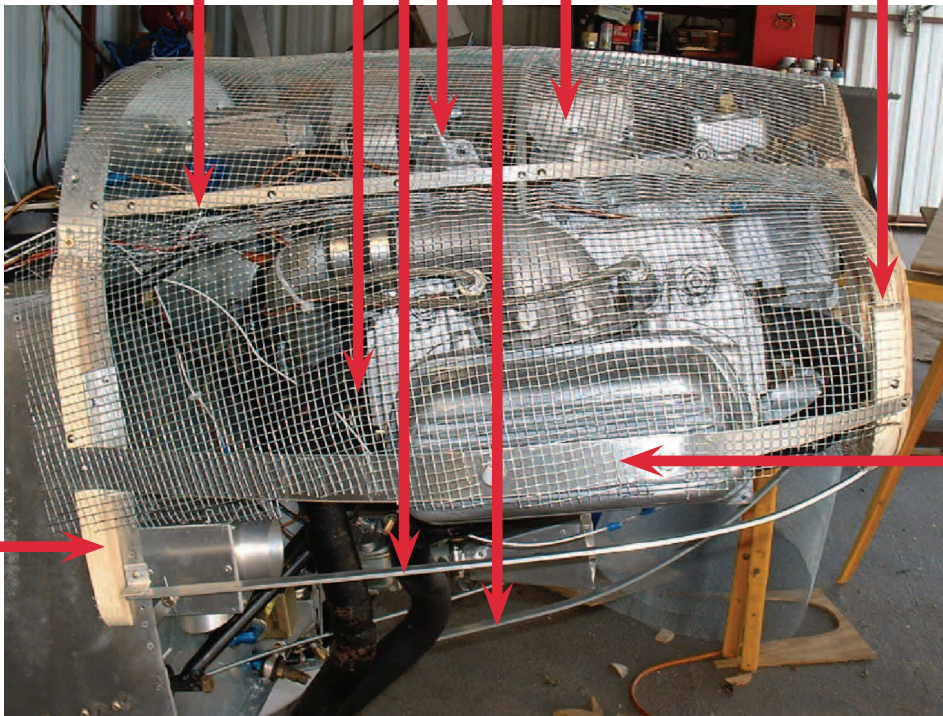
face when both designing and building at the same time. The cowling was one such obstacle that had to be worked out.

The plane had its start when I told my wife how much I always wanted to design and build my own airplane. She said, "Go for it." So if you

First the hardware cloth is cut and attached to the top of the engine. Secure it to metal strips with sheet metal screws.

3/8" tubing and strips of aluminum are used to support hardware cloth.

Wooden former for air inlet attached to baffle mount holes the front of the engine.



Wooden former for air out-

Attach metal strips to rocker box covers. Use spacers to provide clearance between finished cowling and rocker covers.



Above, left: Cowl ready for duct tape to be applied, and Bondo body filler to be applied over that. The cowl is then sanded to desired finish, and 2" clear packaging tape is applied over the cowl. That's then waxed and fiberglass applied.

Above, right: Cowl ready for fiberglass. I used two layers of RA7725 fiberglass with E-Z poxy epoxy. Notice that on the bottom of the cowl it was not necessary to fill with Bondo.

want to build a plane, get a good spouse.

The next day I was having a coffee in McDonald's and sketched on a paper napkin the design of the airplane as it exists now. It had no compound curves except the cowl and the skirt around the windshield.

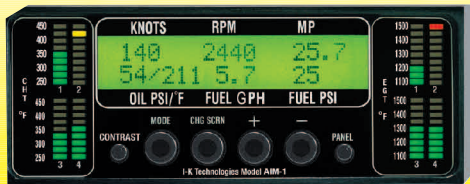
I built and assembled the primary parts of the airplane in about a year and a half. Then came the cowling.

The two parts I had to work around at that point were the spinner and engine. They were set and could not be changed. I built plywood forms with those two parts in mind and attached them to the engine using existing holes in the crankcase.

Strips of aluminum were attached, as shown in the photos, and hardware cloth from the hardware store was attached with screws and, in some places, safety wire. It's fairly easy to shape the hardware cloth to the contour desired and piece it together with safety wire. Then I taped over the hardware cloth with duct tape, added Bondo body filler, and dressed it to exactly the right

# AIM-1™

AIRCRAFT INFORMATION MONITOR



**\$1499 + PROBES**

- ◆ Large-character LCD Display
- ◆ Back-lit, sunlight-readable screen
- ◆ Clearly labeled information
- ◆ Color-coded LED bargraphs
- ◆ Dimmable for night flight
- ◆ Optional audible or visual alarms
- ◆ Lightweight; radio-rack width
- ◆ Configured for your engine

- ◆ RPM ◆ MP ◆ OP ◆ OT ◆ FP
- ◆ Fuel flow ◆ Altitude ◆ Airspeed
- ◆ 4 CHTs & 4 EGTs (graphic and numeric)
- ◆ Comprehensive Pilot's Checklist
- ◆ Optional OAT & Density Altitude

*I-K Technologies*

(818) 302-0606

[www.i-ktechnologies.com](http://www.i-ktechnologies.com)



# An Old Friend Is Back

**Just Like in the Good Old Days**

All the Randolph products, all the Randolph quality. An aviation icon is back on the market again... to stay.

**800-362-3490**

Or e-mail us at [info@randolphaircraft.com](mailto:info@randolphaircraft.com)

*Randolph*  
Aircraft Products



The cowl is cut along the side, separated, and a 3/4-inch lip added to the inside of the lower half of the cowl to provide an area for the top cowl to attach to. Tinnerman nuts were added to this lip every 3 1/2 inches to fasten the two halves together. Two more plies of fiberglass were added to the inside of the cowling. The completed assembly was sanded to the desired finish.

It took me about 135 hours to make the cowl using this method. It is probably possible to use foam as a base, but I have not tried it.

shape. Then I taped over the Bondo with 2-inch clear packaging tape, wax, and two layers of fiberglass.

When the fiberglass cured, I sliced the cowl lengthwise and removed it from the mold. I added two more layers inside the cowl and a lip on the edge of the lower cowl for fasteners.

It took me about 135 hours to make the cowl using this method. It is probably possible to use foam as a base, but I have not tried it.

Soon I will begin fabricating cowls for builders of the CX4 and making them available at [www.thatcher-cx4.com](http://www.thatcher-cx4.com). Since I began selling plans for the airplane last fall, 52 builders have purchased copies.



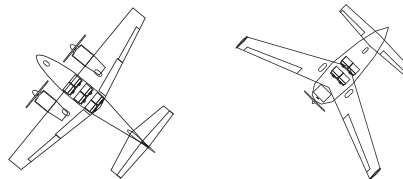
www.davinci.aero

## DaVinci Technologies *Tools For Light Aircraft Design*

### AirplanePDQ™

Integrated airplane design software specifically for the experimental aircraft enthusiast or professional. See how your dream design will fly, or try out modifications to existing designs.

- ✈ Initial Sizing
- ✈ Layout, Lofting and 3D Modeling
- ✈ Weight and Balance
- ✈ Drag Estimates and Performance Analysis
- ✈ Supports Many Unusual Configurations



### Airfoil Optimizer™

Airfoil Optimizer is a software tool to help you select the right airfoil for your airplane design and includes a huge collection of airfoil lift and drag data.

- ✈ Rank airfoils based on their performance
- ✈ View detailed airfoil "polar" curves
- ✈ Compare overall airplane performance with different airfoils

DaVinci Technologies, LLC  
 PO Box 5159 • Laurel, MD 20726-5159  
 Voice: (877) 334-4731 / (301) 317-6568  
 Email: [info@davinci.aero](mailto:info@davinci.aero)  
 Fax: (208) 485-7749

