

# FlightLine

A Monthly Publication of Collins Model Aviators September 1998



## Reminders:

- Next CMA meeting is Thursday September 3<sup>rd</sup>
- CMA Fun Fly is September 12<sup>th</sup> at 3 pm.

## Featured Photo:

This month's featured model is my new Great Planes Super Sportster 40. I just finished putting it together and it is ready for its first test flight.

For the engine, I used my OS Max .70 Surpass. The engine seems large for a 40-sized model but it was one of the recommended engines. The model is an ARF so I was able to put it together in less than a week.

For more photos and information on how the building went see page 2.

James H. Doty, FlightLine Editor →

## In This Issue:

Featured Photo:.....	1
Super Sportster 40 .....	2
A Visit to the Flying Circus Model Aircraft Show3	
August 6, 1998 Minutes .....	4
President's Column.....	5
Hobby Shops Merge.....	6
Gullows Aeronca.....	6
Tips and techniques .....	7
How to Clean that Oil-soaked Air Frame.....	8
Built-In Engine Analyzer .....	8
The Martin XB-26H.....	9
Local Events: .....	10
 Heads Up, CMA Activities .....	11



## Super Sportster 40

by Jim Doty

I've been flying my old-timer all summer without incident, but after about 50 flights with a slow-flying well-behaved model, I was starting to get bored. I had intended to fix up my sweet stick, but I was running out of summer. If I was going to get to fly anything before winter I needed something I could put together quickly.

I was looking for a nice-looking low-wing tail-dragger that could use one of my existing engines. The Great Planes Super Sportster 40 seemed a good choice. Although the model is called 40-sized, the box recommends a O.S. Max .46 SF two stroke or an O.S. Max .70 Surpass four-stroke. I had a .70 Surpass so I was ready to go.

The plane is a typical ARF with a pre-covered fuselage and wing. The construction is mostly wood with a plastic turtle-deck on the fuselage. Assembly went quickly: first glue the wing halves together; attach the tail feathers; glue the control surface hinges into the pre-cut holes; install servos and control rods; mount engine and assemble wheels. The instructions were relatively clear with good photos and illustrations.

This is my third ARF, and for the most part I didn't have many problems with the assembly. Most of the

problems I encountered were with bonding the plastic components together without making a mess. I tried to clean off some of the excess CA on the stabilizer, but found that the CA solvent smeared the paint used on the covering. I also had trouble bonding the clear canopy. The instructions recommended RC-56 white glue. I didn't have any RC-56, but I did have some white glue that said it was good for bonding canopies. Two days later and the glue hadn't dried, so I cleaned it off and used thick CA.

In general the fit of the components was good, but I did need to do more trimming on the wing saddle than I expected to get a good fit. The kit provides a nice adjustable engine mount, and the firewall is pre-drilled with mounting holes and blind nuts already installed. Unfortunately one to the holes was about 3/32" out of alignment so I had to file the hole in the mount to make it fit.

However, everything else fit together well, and I was able to put the entire plane together in a few nights. Anyone with a little building experience should have no problem assembling this ARF.

For the most part I built the model to look like the photo on the box, but I did make a few adjustments for style. For a pilot I used the head from my daughter's Rugrat doll. I thought that the panicked expression on Chuckie's face fit well with my



limited flying skills. I also didn't add the stripes to the sides of the cowl or the wing tips. I've always had trouble getting the stickers on without wrinkles, and they are always the first to get messy looking after a few flights. I also made the trim tape around red to make it stand out better.

In general I was very happy with the model. With the 70-sized engine and a large-capacity battery pack it is a little heavy. I haven't been able to weigh the plane yet but here are the specs from the box:

**Specifications:**

- Wing Span: 55.5 inches
- Wing Area: 567 in<sup>2</sup>
- Weight: 4.5 to 5.5 lbs
- Fuselage Length: 46.75 inches
- Wing Loading: 18 to 22 oz/ft<sup>2</sup>

The plane is all ready to go, by the time you read this I should have attempted a first flight. I'll try to get someone experienced in higher performance planes to trim it out for me. I'm sure that it will be a big change from the old-timer I've gotten used to.

James H. Doty, FlightLine Editor →

**A Visit to the Flying Circus Model Aircraft Show**

by John Michael

In the beginning of August, while visiting my parents in Cincinnati, I happened upon a newspaper article about the Greater Cincinnati Radio Control Club's 38th annual Flying Circus Model Aircraft Show. Naturally, I made whatever arrangements I needed to pay a visit to this show. So Sunday afternoon with my father, brother, brother-in-law, a niece, and a nephew we were off to the field. The show was all Sunday afternoon, from 1-5. We arrived at about 3:30, somewhat late, but still time to catch plenty of action.

I was impressed with the field. According to the article, this field, a part of the local Franciscan Seminary grounds, was rented to the flying club for over 35 years. The rector of the seminary when it all began was interested in model flying and allowed the club to start using the field. He had the Army Corps of Engineers level the site and build a 400 foot runway. The club has been flying there ever since, and has made many improvements to the site. It has an open building next to the runway for setting up and working on airplanes, a fence along the entire length of the runway to divide the spectator area from the pit area, and cement walkways in the pit area. Most of the 11 acre site is flat and grass, and the area is surrounded by trees. There is ample parking for the upwards of 1200 people who were visiting the site that day.

The events were fun to watch. Two events were called a balloon bust. Styrofoam walls about 4 feet high had balloons tied to them were placed in the field beyond the runway. The flyers had to come in low and try to break or release the balloons. As easy as that may sound, many of the airplanes went crashing through the walls. At the end of the contest the field was covered with downed airplanes. As if that wasn't enough, they did the same thing again. This time the airplanes had to go at the balloons inverted. All this seemed hard on airplanes, but the flyers were obviously having fun.

The club took the opportunity to show off one of its club projects, a model of a B-29 with a 12 foot wingspan, powered by four 1.1 cubic inch engines. The bomb bay of this model was open, and designed to carry and drop a model of the XB1, the first airplane to break the sound barrier. The XB1 was radio controlled, and powered by a rocket engine that could be ignited on the fly. The B-29 carrying the XB1 had a long roll and slow climb, barely clearing the trees at the end of the field. It circled the field and came in low over the runway for a photo pass, and then climbed a few hundred feet in preparation for the drop. Once again over the runway, the XB1 was released. It dropped fast, but was well in control as it circled the field. About 50 feet above the runway the engine was lit, and up the plane went, well above the altitude of the B-29. The engine didn't burn long, and again the XB1 circled the field and came in for a nice landing on the grass along side the runway. It was an impressive show.

Another event was a race between six model P-51s. This looked like a lot of fun. There were no pylons. They just flew from one end of the field to the other for six laps. If one plane got a little behind, he just cut his turn a little tight. After six laps a winner was declared and the planes took their turns landing after doing the appropriate victory rolls over the runway.

Still another event was a contest to see who could be the first to crash into a target airplane. A styrofoam drone with bulls-eyes painted on both sides was towed behind a slow moving airplane. About a dozen other airplane tried to crash into the drone. I've never seen such a cluster of planes at once. I couldn't believe there weren't more mid-

airs. It was a swarm. A couple of them got pieces of the drone before someone finally cut the tow line and the drone floated to the ground.

The last event was the launch of a model space shuttle. The shuttle was powered by four rocket engines. After much fanfare with sound tracks and a countdown from a real shuttle launch, the engines failed to ignite. After about a 15 minute delay they replaced the igniters, gave a quick countdown, and the shuttle took off straight up, thick plume of smoke behind it. When the engines stopped the ship dropped fast. Too fast. A great attempt to bring it down on the runway failed. It rolled just before touchdown and laid on the runway in pieces.

The MC of the show announced that this was a fitting end to the show. The field land had been sold for development, and the club had been told they could not fly there any more after that show. We were promised that the club would find another flying site, and the flying circus would return again next year. I wish them luck on their field search, and hope to be able to join them again next year.

John Michael, CMA President →

## August 6, 1998 Minutes

By Doug Emerson

Floyd Van Auken called the meeting to order. There were 17 people in attendance.

### Old Business:

Treasury report was \$520.29 in the Rockwell account with \$376.55 of known expenses that have not cleared yet. This results in an effective balance of \$143.74.

Rich Dean reported there has been one promising response to the recent notice put in "Rockwell Collins Today" that we are looking for a new flying field.

Floyd passed out copies of the initial draft of the Helicopter field rules for review by all members.

The mowing schedule was reviewed and updated

September 12 is the fun fly. Prizes have been purchased. Nearly all arrangements have been completed. It is planned to eat from 3-5PM and then start the contests at 5PM.

It was decided that we should spend remaining funds on refurbishing the club trainer. Needed items include new servos, batteries and more fuel.

**New Business:**

none

Doug Emerson, CMA Secretary →



## President's Column

by Crist Rigotti

Hello flyers, it was another quick month for the books. In August, I went to Cleveland, Ohio to visit my family then on to Columbus for the Heli Internationals. Hyped to be the largest Fun Fly in the world. There were about 350 registered pilots. The weather was hot and muggy. I spent Thursday through Sunday there. Next year I'll make it a few days shorter. It's great to see all the new stuff and to talk to the manufacturers and see flying buddies from around the area. I only flew a few times, but I look at this to be more social than competition. Everyone should try to attend a FunFly that is of interest to them. It's nice to get away even for a day.

In less than two weeks we will be having our Fun Fly Picnic on Saturday the 12<sup>th</sup>. It starts at 3pm and goes till dark. The flying will start PROMPTLY at 5pm. Last year we started and ran a little late. I'm hosting the flying events and I'd like to move them along. I think we'll have more flyers this year too. It'll be a lot of fun. Duane is running the "Barbie". I've heard comments that he is well qualified. I don't think we have set a rain date, but it is usually the following week. We'll keep you posted.

It's not too early to start thinking about officers for next year. We open the nominating at the October meeting and close it at the November meeting. Remember this is OUR club and you can help by being an officer for next year. Ask any of this year's officers and I'm sure they will tell you it hasn't been too tough on them. As of right now we have had two leads on a new flying site. One didn't pan out and the other is still under consideration. I think we might have to advertise more on the RNN and maybe in a publication that reaches the farmers in our area. I'm a bit concerned about not having a home for next year. We still have some time, but it is still ticking away.

The weather is starting to cool down now. I can notice an improvement in the helicopter's performance. Usually when it gets cooler I have to open up the needle valve a click of two. This is because the air is denser and needs more fuel to maintain the right fuel/air mixture. You'll see an improvement in airplanes as well. The heli really likes it below 70F. I know it is still "summer", but the cooler fall months are not that far away. Now is the time to finish up you goals for the year. You did set some flying goals didn't you? I'm working on my autorotations, nose-in, and inverted flight. All still more work till I'm comfortable with them. Plan ahead to use your flying time to your advantage to improve. While at the field ask someone to critique your flying. Have them be honest and realistic. Last year I asked a buddy what HE thought I should work on to improve. It didn't take him long to answer..."Learn to turn in toward you with the heli". I've been working on

this and I feel I am a better pilot because of his honest opinion. Our flying season is short enough as it is. Let's make it count all we can!

Finally be sure to thank the instructors we have in our club. They put in a lot of their time in helping YOU to become a better pilot. We see them there every week helping out. When they are training you, they are giving up their own personal flight time. A BIG and hearty THANKS guys. My hat is tipped for you.

Remember to fly safely and wisely. Check out your plane, engine, and radio before you go flying. It only takes a minute or two on the bench. Let's keep our field safe and fun.

Crist Rigotti, CMA President →

## Hobby Shops Merge

EMAIL from Diane Karr owner of Box-Kar Hobbies

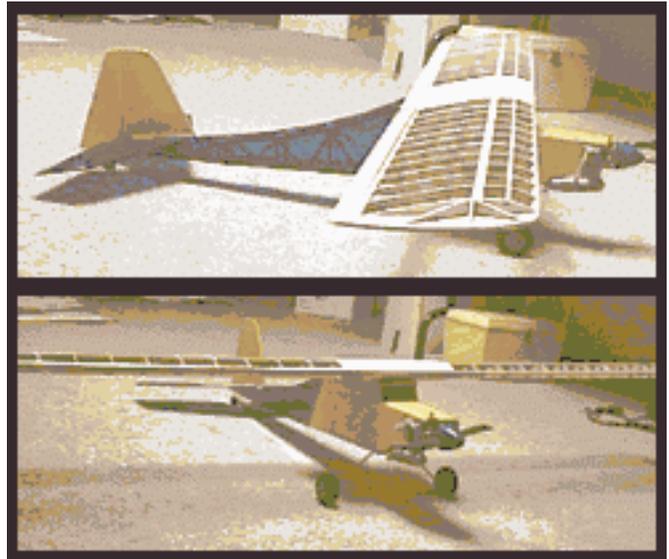
I would like to inform your members that R/C Adventures (HobbyZone) and Box-Kar Hobbies have merged.

September 8th (if things go right with the contractor) both hobby shops will be moving to Town and Country Shopping Center (3661 1st Ave. S.E. 52402) into a much larger store.

Thank you the monthly copy of FlightLine

thank you

Diane Karr



## Gullows Aeronca

By Frank Gutierrez

The Highly modified Gullows Aeronca is near completion and should be ready to fly soon. The combined building skills of Drew and Frank produced this scratch built airplane in two weeks. The airfoil was taken from the plans of a 4-Star 40 and scaled to fit this airframe using a scanner and the Visio program. The main spar is made of spruce. The powerplant is an O.S. .10 FP.

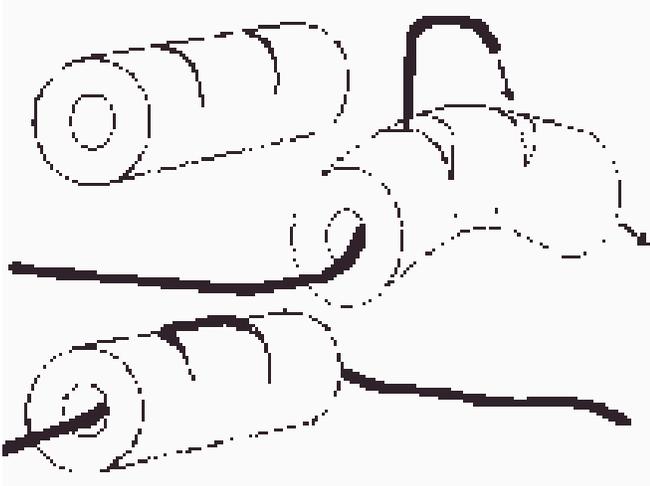
Frank Gutierrez, CMA Flight Instructor →



*The following articles are reprinted from the AMA's National Newsletter*

<http://www.modelaircraft.org/news/letters/julynews98.htm>

## Tips and techniques



### Antenna Keeper

What do you do to keep the end of your antenna in place? A ½ inch piece of fuel tube does the job nicely — cut two slots in it about half way through. Squeeze the tubing to open up the slots, and thread the antenna through the slots as shown.

The tubing can then be slid up the antenna and attached to the fuselage as desired.

The tubing will not beat your aircraft to death as the antenna whips around in flight, will hold the antenna securely, and yet in case of (ugh!) a crash, the tubing will slide right off instead of breaking the antenna.

from Clay Ramskill  
7 Towers RC Club  
cramskill@arlington.net  
<http://www.startext.net/homes/cramskill/inkclay.htm>

### CA Glue

by Dave Price

Buy a few extra tips for your CA bottles. As they clog up, place them in a glass jar with a little acetone. This way you will always have a free flowing tip. Try not to use a pin to free the clog. This might scratch the inside plastic surface causing the CA to dry in the tip.

From Plane Talk  
Charles Brooks, editor

105 Lewis St. #8  
Berea, KY 40403

### Fuel Tubing

When you install your tank use a different color tubing for the fuel feed line and the pressure/vent line. I always use red for the fuel line and grey, green or blue for the vent. This way you never have trouble connecting the wrong lines after installation.

from Plane Talk  
Syd Russell, editor  
Snohomish Radio Aero Club

### Ceased Engines

Do you have some engines that have been sitting, safely tucked away for another day? Have you pulled one of those engines out of storage for your latest creation only to find it is stuck together like it had CA poured into the carburetor?

If so, try this. Get out your covering heat gun and blast the motor until it gets too hot to touch. Let it cool off and the engine should be freed up and ready for a complete tear down and cleaning. Alternatively, you can place the engine in an oven set at 200 degrees.

from The Flightline  
Tom Minger, Editor  
1751 Ponca Court  
Fremont, CA 94539

### Cutting Fiberglass Cloth

Next time you have to cut fiber glass cloth, place it between two pieces of wax paper. The wax paper will prevent it from pulling and fraying during cutting.

from Skatgazette  
Gary Beggan, Editor  
8 Sextant Drive  
Grayslake, IL 60030

### Building Tips

When building fuselage sides, one over the top of the other, the problem is separating the two halves

because of the CA running into the gap between them. The CA is hard to cut through and you can mutilate the structure trying to get it apart. This has not been a big problem when using conventional model cement because it's fairly easy to cut the sides apart.

I've been using strips of plastic bags across the joints to keep the CA from getting between the sides, however, these strips tend to slip and slide and the clear plastic is hard to keep track of. Chuck Swift came up with the idea of using scotch tape for these frameworks. It works slick!

from The Flightplug  
Art Swift, Editor  
21306 Lopez St.  
Woodland Hills, CA 91364

## How to Clean that Oil-soaked Air Frame

by James Strauss

Ever notice how some people fly their planes 300 times in a year and then sell it at an auction because it gained almost 3 ½ pounds from soaked-in oil. Problem is, we tend to fall in love with the external of our planes and don't pay attention to the inside until we get it home.

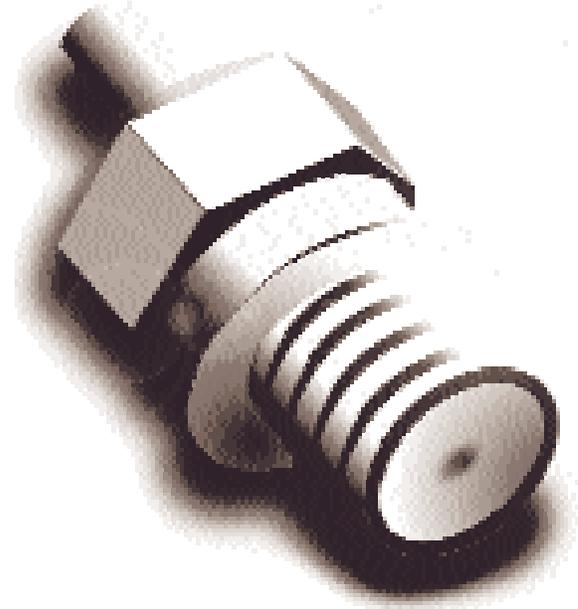
It is possible to restore even a severely soaked airframe with a little elbow grease, time and patience. You'll need a 12-16 oz. Bottle of rubbing (isopropyl) alcohol and an 8-10 oz. box of cornstarch.

Strip the covering off the affected areas. Make a "soupy" slurry of the starch and alcohol mixed together. Using a two-inch paint brush, apply the mixture liberally to the oily area. Wait 20 minutes, then apply a second coat (make sure the alcohol is replenished so the mix stays soupy).

After drying overnight, use a stiff bristle brush (I use another 2" brush cut off half way down) to clean off the now oil-laden cornstarch. Repeat this process until the starch comes off in nearly powder form again. Last wet a cloth with alcohol and wash the

wood. When it dries, the wood is almost as good as new and is ready to fly with new vigor.

from Valley Aero modelers  
Dan and Charlie Weiland, Editors  
325 E. Brewster St.  
Appleton, WI 54911  
weiland@execpc.com



## Built-In Engine Analyzer

Here's a list of glow-plug readings to help you find the perfect mixture.

**Shiny element (like new):** You have picked up a new plug by mistake, or your engine is set to a rich setting. You can lean down the engine and test it again.

**Dull element:** A dull element is one that has lost its shine, but it is not frosted. If the element is still in its original shape, not mangled or twisted, your engine is lean enough to work hard without being damaged. This is a good setting for prolonged running.

**Frosted element:** The frosted element has an "orange-peel" surface and is an indication that you are, in fact, running lean. Lean is mean, but don't expect your engine to hang in there during

prolonged running. If the element is not mangled, you are simply running lean. Richen it up a bit.

**(Frosted or missing) mangled element:** When the element is frosted or completely destroyed, it can be an indication of a lean run. You must set the engine rich and run it again to determine the cause of damage.

**Black element:** A black element is not a good one. It can be an indication that a rotor is being eaten up or that aluminum filings are in the engine. A black residue at the tuned pipe or muffler exhaust is an indication that something aluminum is coming apart in the engine.

**Small shiny flakes:** Small shiny flakes on the glow plug can be an indication that new bearings are in order.

**Missing plug:** This scenario shows that you forgot to tighten the glow plug.

**Dull and pulled out:** When the element is dull and pulled out toward the piston, your needle setting and tuned pipe are on the money. The pulled element is an indication that pipe scavenging is working great.

from Turbulent Tissue  
Jim Mowrey, Editor  
310 Capitol Ave.  
Kinsley, KS 67547

AMA's National Newsletter →



## The Martin XB-26H

'Middle River Stump Jumper'

from the archives of the USAF Museum

(Glenn L. Martin Company Public Relations Department from the mid-1940s) This strange-looking tandem gear, mounted on a U.S. Army Air Forces Martin B-26 Marauder, is the Glenn L. Martin Company's answer to a problem of stowing heavy, bulky landing gears in the thinner wings required for new multi-jet planes. Two main wheels, fore and aft of the wing, retract into the fuselage, while smaller outrigger wheels on either wing will aid the pilot in balancing the plane while taxiing. Here, the small wheels are located in the engine nacelles. On jet planes, they will be on the wing tips. Burning rubber and deep skid marks at the Glenn L. Martin Middle River Airport indicate the severe tests to which the new type tandem gear was put by Martin test pilots.



<http://www.wpafb.af.mil/museum/fta/fta.htm> →



**United States Air Force Museum  
Public Affairs Division Wright-  
Patterson Air Force Base, Ohio  
45433-6518 (937) 255-3286  
News Release**

The United States Air Force Museum, along with the Dayton Ohio Giant Scalpers Branch of the International Miniature Airplane Association (IMAA), will sponsor a Fly-In of one-quarter scale radio control aircraft Friday, Sept 4 through Sunday, Sept 6. Flying will be from 9 a.m. to 5 p.m. each day.

More than 125 pilots, some with two to three aircraft are expected to perform in this event. aircraft will include both World War I and World War II vintage aircraft such as the B-17 and B-24.

The event is free and open to the public. Spectators for this event should enter through the Museum gate off Springfield Pike and follow the signs to the event area. Flying will take place on the runway behind the Museum. All activities will be held outdoors. Visitors should bring their own lawn chairs and blankets.

The Air Force Museum is located along Springfield Pike, six miles northeast of downtown Dayton. It is open seven days a week from 9 a.m. to 5 p.m. admission and parking are FREE.

**NOTE TO MEDIA:** For further information, contact the U.S. Air Force Museum Public Affairs Division at (937) 255-4704, ext 330 or 332.

## Local Events:

**SEPT 5-6**--Storm Lake, IA (C ) Labor Day Fun Fly. Site: Storm Lake Municipal Airport. Steve Swanson CD, 606 S Main St. Alta, IA 51002. PH: 712-749-5302. Fun fly in conjunction with Balloon Days. Time 9:00am to 4:00pm. \$3.00 landing fee, concrete or grass runways. Food available. Any size R/C airplanes welcome. Full size airshow and balloon launch in the afternoon. Sponsor: NW IOWA RC CLUB

**SEPT 6-7**--Vinton, IA (C ) Benton Co. Propbuster Fun Fly. Site: Vinton Airport. David Wilson CD, 6419 16th Ave. Garrison, IA 52229. PH: 319-477-6241. Two days fo open flying, starting at 8:30 am. Grass or asphalt runway. Lunch will be available. Sponsor: BENTON COUNTY RADIO CONTROLLED PROPBUSTERS

**SEPT 12**--Clear Lake, IA (C ) Radio Control Float Fly. Site: McIntosh State Park. John Matteson CD, 904 So 15<sup>th</sup> St. Clear Lake, IA 50428. PH: 515-357-6387. Sponsor: RIVER CITY RADIO CONTROL

**SEPT 12-13**--Council Bluffs, IA (C) Loess Hills Giant Model Air Show. Restricted to IMAA members. Site: The Field. D.K. Hutcheson CD, 268 Kenmore Ave Council Bluffs, IA 51503 PH:712-322-0038. Field - I29 to Nebr Ave exit 52 go S 1/2 mi to field. Camping, no hook ups. Sponsor: LOESS HILLS EAGLES

**SEPT 19**--Blakesburg, IA (A) EISS Fall Soar In for 441, 442, 517(JSO). Site: Antique Air Field. Mike Fox CD, 115 N Thornwood Ave. Davenport, IA 52802. PH: 319-322-1244. 2M Res (no experts) HLG - launch by High start and Landing points. Sponsor: EASTERN IOWA SOARING SOCIETY

**SEPT 20**--Blakesburg, IA (A) EISS Fall Soar In for 444(JSO). Site: Antique Airfield. Rusty Shaw CD, 5312 175<sup>th</sup> Ave. Otumwa, IA 52501. Unlimited RES (no experts). Sponsor: EASTERN IOWA SOARING SOCIETY

**OCT 4**--Vinton, IA (C ) Benton Co. Propbuster Fall Harvest Celebration. Site: Vinton Airport. David Wilson CD, 6419 16th Ave. Garrison, IA 52229. PH: 319-477-6241. Flying starts at 8:30 am. Fun fly events to be announced on Sunday. \$5 landing fee enters you in fun fly. Open flying will be allowed between fun fly events. Lunch will be available. Sponsor: BENTON COUNTY RADIO CONTROLLED PROPBUSTERS



## Heads Up, CMA Activities

Thursday, Sep 3, 5:00 pm — Club Meeting  
 Saturday, Sep 12, 3:00 pm — CMA Fun Fly  
 Friday, Sep 18, 5:00 pm — FlightLine Deadline  
 Thursday, Oct 1, 5:00 pm — Club Meeting  
 Friday, Oct 23, 5:00 pm — FlightLine Deadline

**Note:** Meetings are held in the 35th street N.E.  
 Facility (main plant) Cafeteria building 140.



### Send your input for the CMA Web Page to:

Steve Plantenberg x5-9625  
 scplante@cacd.rockwell.com

### **For an AMA membership application:**

<http://modelaircraft.org/Mem/Memapp.htm>

### **Flight Training**

Flight Training has started and is held Tuesday and Thursday (weather permitting) every week during the summer. On Tuesdays one of the club trainers is usually available for beginner training.

## New Solos

Congratulations to new solo pilot Dan Cooley. He joins the growing ranks of new pilots out at the field. He soloed using his LT-40 which was the first plane he built. It is very good when the first plane survives long enough to get a new flier through those tough learning times and on to solo flight.

Rich Dean, CMA Flight Instructor

### **1997 CMA Staff**

**President:** Crist Rigotti.....x5-0612  
**Vice President:** Floyd Van Auken ....x5-4057  
**Secretary/Treasurer:** Doug Emerson .....x5-2356  
**FlightLine Editor:** Jim Doty .....x5-2931  
**Web Page Editor:** Steve Plantenberg ...x5-9625

#### **Flight Instructors:**

**Rich Dean**  
**Frank Gutierrez**  
**Mark Woytassek**

#### **Flight Instructors in training:**

**Irv Anderson**

#### **Test Pilots for first flights of new airplanes:**

**Rich Dean**  
**Mark Woytassek**

### **Send your input for FlightLine to:**

James H. Doty  
 MS 124-111  
 x5-2931  
 jhdoty@collins.rockwell.com

### **For membership information:**

Contact: Doug Emerson  
 CMA Secretary/Treasurer  
 MS 153-260  
 x 5-2356  
 daemerso@collins.rockwell.com

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# 1998 CMA Membership

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<u>NAME</u>	<u>M/S</u>
Irvin Anderson .....	108-103
Geoffrey Barrance .....	108-166
Alan Bechtold .....	124-224
Larry Black .....	155-100
Bob Buschette .....	108-260
Kyle Chapman .....	124-111
Brian Collins .....	107-150
Dan Cooley .....	124-111
Rich Dean .....	124-115
Ed DeRuiter .....	124-111
Jim Doty .....	124-111
Mike Eastman .....	106-183
Doug Emerson .....	153-260
Scott Emerson.....	105-167
Frank Gutierrez III .....	108-166
Richard Kelly .....	124-115
Gregg Lind.....	108-166

<u>NAME</u>	<u>M/S</u>
John Michael.....	108-166
Patrick Neu.....	108-136
Jeff Niemeier.....	106-186
Marion Payne Jr. ....	137-146
Steve Platenberg .....	137-152
Crist Rigotti.....	164-100
Alain Suarez .....	108-166
Duane Smith .....	108-135
David Sneitzer .....	124-115
Van Snyder .....	108-104
Steve Timm.....	105-190
Floyd Van Auken .....	107-140
Tom Wachtel.....	106-186
Charles Ward .....	139-142
Bryan Wesner.....	153-260
Mark Woytassek .....	137-137

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John Crilley  
2540 2<sup>nd</sup> Ave.  
Marion, IA 52302

Jack Morgan  
1209 Raney St.  
Hiawatha, IA 52233

Basil Tilley  
1028 Regent St. N.E.  
Cedar Rapids, IA 52402

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Academy of Model Aeronautics  
5151 E. Memorial Drive  
Muncie, IN 47302

Box-Kar Hobbies  
109 3<sup>rd</sup> Ave. S.E.  
Cedar Rapids, IA 52401

H & J Hobbies  
Marion Heights Center  
Suite 1185 Grand Ave.  
Marion, IA 52302

Hobbytown  
2737 16<sup>th</sup> Ave. S.W.  
Cedar Rapids, IA 52404

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