

FlightLine

A Monthly Publication of Collins Model Aviators

July 1996

☞ **Reminder:** July's CMA meeting is Tuesday the 9th at the flying field weather permitting. Check the CMA Hotline 395-8888 if it looks like rain.

John writes "Hopefully I can soon get it out to the field and have Rich Dean fly it for me as I have never flown a R/C. I enjoy building them but I like to be an observer come flying time"

J. H. Doty, FlightLine Editor ➔



July's Featured Model — John Crilley's Sig Astro Hog



John Crilley's Sig Astro Hog, the other side

July's featured model

John Crilley's Sig Astro Hog

John Crilley was kind enough to send me pictures of his Sig Astro Hog, along with a written description of the plane. It has a 71 inch wing span and a length of 49 1/2" (without engine). A .45 to .60 engine is recommended. John installed a Magnum XL53A (the engine is not shown in the photo because it was on a burn-in stand).

John covered the Hog with Cub Yellow MonoKote and trimmed it with Waco Red Sig Super Trim. The Hog can be made with either tricycle or conventional (tail dragger) gear. John opted for the tricycle. He used Hitec Focus 4 radio gear and servos.

John bought the kit and the extras like engine, prop, tank, wheels, wheel collars, etc., at R/C Adventures. The kit had to be ordered but it came promptly. John wrote that the step by step instructions with photos and parts list were very helpful, and simplify things for a beginner.

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Summer Flying

by Rich Dean

The summer flying is getting underway, slower than hoped for but the weather hasn't been cooperating much. I was out with Tom Dewulf and flew the new club trainer. It is a Sturdy Birdy with an OS .25 and is a nice combination. The engine was broke in last year and it runs smooth at all throttle settings so flying slow with new students at the controls should be no problem.

I also had the opportunity to fly Wayne Savold's Sig Mid-Star 40. We have given away a couple of these kits at the yearly CMA fun flys but none have made their way out of the box yet. The Mid-Star 40 is a great flying plane. Quite maneuverable and relatively neutral it would be a good plane to transition to from a high wing trainer. It is not as quick as the low wing Sig Four-Star .40 but is much better in the roll maneuvers than a high wing trainer. It can be built as a tail dragger or with trike gear so take your pick.

One area I am weak on is recommending a good "second" plane to have after conquering the high wing trainer. The Northeast Aerodynamics Sport Air 40 and the Goldberg Tiger 2 are at the top of my recommendation list right now. Bryan Wesner is building a Sport Air 40 and Irv Anderson had his Tiger 2 at the Beauty Contest so I hope to fly these planes this summer and let you know a little about where they fit as a good second or third plane to have in your fleet.

A biplane that I have flown and would recommend as a second/third plane is the Gee Bee Tiger Moth. It is a .40 powered taildragger, builds light and can fly slow. It takes a little more effort to build and align a second wing but there is just something about a biplane that makes the effort worth it.

Get out to the flying field. Fly the new Sturdy Birdy club trainer, ask to fly Wayne's Mid-Star 40, see for yourself what is working and what is not. Most of you know I encourage flying as many different airplanes as I can just to learn and expand my data base of knowledge. The rest of you know I am just burning your fuel and not mine!

See you at the field, and bring a plane.

Rich Dean, CMA Flight Instructor →

From the President

by John Michael

In the life of each model airplane flyer a little rain must fall, and last evening it fell on me. I just ordered my third trainer, since my second trainer hit the ground rather hard yesterday, making it good for not much of anything but parts.

This is the second time my plane has crashed after just a few flights, and this time I wasn't even flying it. The plane just seemed to stop responding to the controls, which is the same thing I seemed to experience with my first one.

Naturally, after losing a plane there is much speculation about exactly what may have caused the crash. After retrieving all the pieces we checked the linkage to the control surfaces, the charge of the batteries, operation of the servo. Everything looked good. The batteries were up, the linkage was intact on the rudder and elevator, and all the servos seemed to operate normally.

So we left the plane sit, transmitter off and receiver on to see what may happen. After a short time, while another person on the field was flying his plane, my servos started chattering and moving. It looked like my receiver was taking hits from another radio on a completely different channel. We also realized that the same group of people were flying last fall when I lost my first plane. Nothing can be proven, but things looked suspicious.

So on the advice of Rich I am sending in my radio for a checkup, and to get the channel changed. We still cannot say for certain exactly what may have been causing the hits, but it seems like a good idea to get off channel 58. If any of you have a radio on channel 58, be advised. You could have problems. And I would think twice before buying a radio with channel 58. It may be that my receiver has a problem. It is just something to be aware of.

This time I am ordering an ARF in an attempt to get back in the air as soon as possible. When I get the plane put together, get all the bean field cleaned out of my engine, and get my radio back, I may be able to fly again in a few weeks. I'm still determined to solo before the end of this season.

We're making plans for our annual fun fly and picnic in September. We need people who are willing to help plan the events for that day. If your interested, or have any ideas to share, be sure to attend the next club meeting. We need to get things rolling so this event can be fun for everyone.

Hope to see you at the field for our outdoor July meeting. Until then, happy flying.

John Michael, CMA President →

Jesper's RC Simulator—A Free RC Flight Simulator

Do you get what you pay for?

by Jim Doty

I know flight simulators are for long winters when you can't get outside, but someone asked me about them so I thought I'd look into it. I remembered Mark Woytassek telling me about a flight simulator on the World Wide Web, so I went looking for it.

I found a few RC related programs, some were stripped-down shareware versions, and others were just junk. Finally I found the program Mark had told me about. The program is called Jesper's RC Simulator by Jesper Hansen in Sweden.

The program is absolutely free (freeware) there are no shareware fees (but there are no upgrades if you do send him a donation). You can't expect much for free, but the program is fairly usable and has quite a few features.

The program display looks pretty much like some of the commercial flight simulators, only a little simpler. There is a shadow under the airplane to help you judge altitude, but it is still difficult to tell where you are in the sky if you aren't flying low.

Unfortunately the simulator is a DOS program that uses the display in a non-standard way, so you can't use it inside a window or use printscreen to copy the screen image to the Windows clip board (so you won't find any pictures of the screen printed in this article). But the program does run OK in full screen mode under windows, or under DOS.

You can control the airplane using the keyboard (if you don't mind crashing every 10 seconds), with the computer joystick, or even with a transmitter with a trainer output.

So far I've been flying with the computer joystick. The program manual tells how to build a cable to connect your transmitter to the printer port interrupt line. You'll need a transmitter with a TTL compatible output, or you'll have to build a small buffer circuit. My JR transmitter only puts out an AC coupled 1 volt peak to peak signal so I'll need a buffer circuit. When I design one I'll let you know.

I initially had trouble controlling the plane. This was due to the stick centering not being properly initialized. If you hit the "h" key the program shows you a bar display of your aileron and elevator positions. This display should show the controls centered when the stick is in the neutral position.

If the position is not correct fixing the problem is a little tricky. You need to restart the program with the -s option. This gets you into the setup screen. Unfortunately unless you change control modes, the program will not let you into the stick calibration screen. So you need to switch to keyboard (or transmitter) control, then stop the program and run it again with the setup option. When you set the control mode back to joystick you'll get a second chance to center the stick and set the control throws. Once you get there it's easy. All you do is move the stick in circles and then hit the fire button with the stick centered.

The program represents airplanes with simple 3D polygon models. You can select from a number of aircraft designs or even make your own designs. The aircraft are represented by two files: Configuration files ending in .FM, and polygon data files ending in .POL. The configuration file includes the flight dynamics parameters such as maximum roll rate and damping. With a little trial and error you can tune your plane to behave like a agile fighter or wallowing trainer.

The POL file is harder to modify. It is just a bunch of polygon vertex locations. It would be hard to generate much

of a plane without an additional design program, but it could be done (the manual talks about a program available to generate airplane designs, but I haven't bothered to look for it yet).

What you can do easily, is take the POL picture file of the plane you think looks the best, and the FM file of the plane with your favorite performance characteristics, and combine them into a new model. Simply copy the files to a new name such as myplane.pol and myplane.fm. To run the program with your new plane just type:

```
jrcsim13 myplane
```

If you pick one of the tamer planes its not hard to takeoff and fly, but landings can be difficult. Because the screen resolution is limited, if you let the plane get too far away it will be impossible to see. The program does have a zoom feature that gives you some extra range, but it is still easy to get too far out.

It would be nice to have a silhouette feature to simulate distant flying. If you make all the polygons on your plane the same color you can simulate this, but it is ugly close up.

There were a few bad behaviors (minor bugs) that I noted. I don't think stalls are handled very well, you can get into slow flight where the plane will seem to hang in the air and then suddenly it will really speed up and begin looping. But normal flight seems fairly realistic. I also noted that if you let the plane get too far away it will sometimes vanish before you think it should and it won't come back even with zoom.

But overall this program is worth playing with, and may even help you iron out some problems with control reversal and over controlling. And of course the price can't be beat.

If you want a copy of this program you can find it referenced on several RC web pages (I can't remember the final location), but if you send me an EMAIL I'll be happy to send you a copy. The Zipped the program and support files are just 120 K bytes, so if you send me a 3.5" floppy I can send it to you that way.

J. H. Doty, FlightLine Editor ➔

Odds and Ends

by Rich Dean

A couple of firsts at the CMA flying field:

1) Electric planes have been flying at the club field! Wayne Savold's Electra Cub and my PuddleMaster have been quietly cruising around. Flight information is being gained as to motors, batteries and the best prop selection. Both planes are powered by .05 sized electric motors.

2) A seaplane has been flying off the pond! The PuddleMaster was hand launched for the first couple of

flights. Everything seemed OK so the floats were attached by Velcro, per the plans and it was flown off the pond. I was heavy on the elevator on the first takeoff and it did not get up on the float step right away but it got off the water and flew just fine. So far I have a tendency to slow the plane too much on landing and kind of plop onto the water instead of smoothly landing on the water but I'll work on it. Later takeoffs have been better by just steering the plane to keep it straight, letting the plane get on the step, then adding elevator after takeoff speed has built up. All this took several flight sessions to get figured out and is a fun change of pace.

Some observations. One of the troublemakers I have seen at the field this summer is the grass is too long. If you are not signed up to mow lend a hand and sign up. To those of you that have been mowing, thank you, your efforts are appreciated. This request assumes that you have been able to keep your lawn at home mowed between showers.

The other troublemaker is the nose gear steering that is too sensitive. The plane that flies overhead in a circle that is a hundred feet across and has a ground steering radius of ten feet is going to cause lots of problems to those pilots learning to take off. The big difference in sensitivity is hard to manage when you are forced to make tiny corrections on the ground run part of a takeoff then switch to relatively large corrections once the plane is off the ground. This gets to be most troublesome in a crosswind takeoff if the wind gets under a wingtip just as the plane is about to get airborne. A new pilot's brain refuses to talk to both thumbs at the same time so make it easier on yourself and reduce the throw on the nose wheel steering.

When slowing down the nose gear steering don't reduce the rudder throw. Hammerheads and spins are easier with more rudder than less rudder. Practice practice practice.

Rich Dean, CMA Flight Instructor →



Last Year's Fuel and Other Things

By Cy Jannke

Reprinted from the AMA National Newsletter

A hobby shop customer asked a popular question of the clerk. "Should I buy new model fuel or is last year's bottle okay?"

That is a tough question to answer. "Get new fuel" elicits a round of comments from other customers about how expensive fuel is, etc., etc. Each modeler has to decide. Here is some information I have acquired over the years. You can decide what to do.

Alcohol-Based Fuel Composition

Lubricant oils (10-22% of the fuel) are either synthetic (combustible at 450°F) or castor oil (500°F). The amount, type and mix are trade secrets of the manufacturers. So either your engine is getting lubrication or it is scorching itself, which is another set of problems.

Nitromethane (0-55%) is another controversial item. I see its function as giving easier starting and reliable idling. Other people feel its function is to give greater power. I am not familiar with its long-term stability in model fuel. It appears to be sensitive to sunlight when in clear plastic bottles.

Coloring dye (less than 1 %) is added to make sure you do not think this colorless liquid is water and use it as such or even drink it. Some manufacturers use a color coding system. This is not uniform in the industry. Dyes are sensitive to sunlight but usually do not turn completely clear with age.

Trace emulsifiers (less than 1%) are added to gel the lubricants into solution (not just mixed, where it would settle out with time or congeal like Jello) with alcohol. These are like dish washing detergents, which allow fats from food to form very fine droplets to suspend (or mix) in water.

Anti-corrosive agents (less than 1 %) are claimed to be added to some fuels. I have no information about these materials. They inhibit; not stop the rusting of steel and pitting of aluminum in storage.

Benzene or Xylene driers (less than 1 %) are key factors to make pure (99.85% or 100%) methanol from 95% (5% water) methanol. Methanol is very hydroscopic (absorbs water vapor from the air). It is both hydrophilic (mixes with water) and hydrophobic (mixes with fats and oils)

because of the structure of its molecules. The last bit of water in 95% methanol is so hard to get out, that the cost of the product just about doubles. After a container of 100% methanol is opened in a research laboratory, it is no longer used as 100% pure. Labs buy 100% methanol in small glass bottles. Once the cap seal is broken on a shelf bottle, it is relabeled as other than 100% pure. This 100% purity is absolutely critical in many lab situations.

Methyl alcohol (AKA methanol, wood alcohol, CH₃OH, 25-80%) is the main combustible ingredient. Its flash point

is 65°F. Closed model engine cylinder chambers reach 400°F.

Warning—Read and Heed

Do not use or put methanol near flames. Do not put it on a fire, near sparks or glowing materials. It is extremely volatile. This means evaporating methanol mixes with the oxygen in the air to form an uncontrollably explosive mixture. Methanol is toxic (poisonous). It evaporates too quickly to harm you if you get any on your skin. It stings if you get it in an open cut, but won't harm you. If you accidentally get it in your mouth, you'll spit it out as it also tastes really bad. It would also be a good idea to rinse your mouth with water. Get anyone who has drunk methanol to a hospital emergency room immediately. If you get it in an eye, rinse the eye with fresh water several times and get help. Most small amounts of methanol are handled by the eye's natural defense system. For larger amounts, rinse the eye and see a doctor immediately. Above all, never drink methanol. Methanol-based fuels are good grass and weed killers, but the lubricants stay around for a while.

Fuel Use

Methanol absorbs water vapor from the air, especially when relative humidity is above 15%. Once a bottle or can is opened and fuel is removed, air enters with its water vapor. Water vapor also passes slowly through the walls of plastic bottles. If the bottle walls are sucked in (vacuum formed) water vapor can enter faster. In 3-6 months the fuel can become contaminated by water. Clarence Lee, *RC Magazine* engine editor, stated that one teaspoon of water in a gallon of fuel is enough to severely contaminate the fuel. It causes model engines

to start and run poorly, if at all. Metal fuel cans with any water will rust internally in less than a year.

Bottom line: a gallon of model fuel costs about the same as lunch at Denny's. Model airplanes cost much more than lunch at Denny's. Water vapor enters fuel over time. Water contaminated fuel can cause engines to start poorly or quit running. Most modelers don't go to flying fields to "fool" with engines. Models with "quit" engines are usually not located in perfect landing patterns. Models located in imperfect landing patterns go "bump" on Mother Earth. Mother Earth, who has supplied all the raw materials for our modeling endeavors, is not very forgiving to model airplane "bumps." Uncontaminated model fuel is readily available at local hobby shops for reasonable prices.

Should you use fresh fuel in your "pride and joy's" engine? It's your choice. It's your dollar

Modeling—Do It Safely!

Growing up and "older" is filled with a lot of experiences from many sources. Modeling, while it is a terrific hobby, has some hazardous areas, like any other activity. It is important to know about these so you and your children can safely enjoy the hobby. Please keep all modeling liquids and tools in a place where small children cannot reach them. Be aware of the flammability and safe storage conditions of all hobby products. Be informed and ask questions of your doctor, if necessary.

from Woodland Davis Aeromodelers
Jim Kingsley, Editor
2899 Londonderry Drive
Sacramento, CA 95827 →



Editor's Note:

The above article and cartoon were reprinted from the May issue of the AMA National Newsletter. From time to time I'll try to pull out things that I think will be of interest.

CEDAR RAPIDS - SKYHAWKS

SATURDAY JULY 13
MARION AIRPORT

R/C COMBAT!!!
FLYING STARTS AT 10:00

2 CLASSES BY ENGINE SIZE
UP TO .25 AND .26 - .46
FRONT INTAKE SIDE EXHAUST
NO TUNED PIPES
5 POUND MAX AIRCRAFT WEIGHT
\$5.00 REGISTRATION FEE PER CLASS
PLEASE CALL TO PRE-REGISTER

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FOR MORE INFO AND A FULL COPY OF THE RULES PLEASE CALL
SCOTT GRADY 366-4309
OR
KYLE FRIAU 364-3289

**NATIONAL
FLOAT FLY '96**

JULY 19-21
GREATER OTTUMWA PARK
OTTUMWA, IOWA

WE'RE READY TO GO AGAIN SO BRING YOUR FLOAT PLANES AND JOIN US FOR SOME FUN AND EXCITEMENT AT NATIONAL FLOAT FLY '96.

The event will be held in conjunction with 19TH ANNUAL OTTUMWA PRO BALLOON RACES and will include carnival rides, live music, food vendors and many other attractions ON-SITE. NATIONAL FLOAT FLY '96 will feature a flying site with 20 acres plus over water. Numerous prizes will be awarded and the first fifty entrants will be eligible for a drawing of a HOT AIR BALLOON RIDE (subject to weather and final Balloon pilot approval).

The event will be AMA sanctioned by the OTTUMWA R/C FLYERS, sponsored by HOBBY CHEST and feature guest announcer JIM VAN LOO.

For information contact HOBBY CHEST (515-683-4436)

GREATER DES MOINES

AVIATION Expo ANKENY, IOWA

FEATURING "STRIKING BACK"
Founded by Byron Godbersen

World's Most Unique Family Aviation Event

Full Scale and Radio Controlled Air Show

R/C Flying and IVC Battle Re-enactments · Live R/C Demos

"Striking Back" RIC Show featuring Fantastic Pyro · World's Largest IVC Model

Military Displays · Manufacturer's Exhibits & Booths · Static Military Planes

Home Built Aircraft · Control Line Flying · IVC Training Flying

NEW THIS YEAR! ... Forums

Model Contest

R/C radio systems will be awarded to the top finisher in the following 4 classes for completely finished models only.

(Note: All models must be entered by Friday, July 19, at noon.)

1. Military Sport Scale
2. Sport Planes
3. Helicopters
4. R/C Cars

\$100 prize will be awarded to the top finisher in the 15 and under only Plastic Model and Plastic Plane category.



Heads Up, CMA Activities

Tuesday, July 9, 5 pm—Club meeting at field

Monday, July 15, 5 pm—FlightLine Deadline

Thursday, August 1, 4:45 pm—Club Meeting

Friday, August 23, 5 pm—FlightLine Deadline

Note: All meetings and build sessions are held in the 35th street N.E. Facility (main plant) Cafeteria building 140, unless otherwise noted. July's meeting will be held at the field

FlightLine deadlines are flexible if you can let me know ahead of time what to expect

I'm going out of town the end of July so get any articles or announcements in early. The July Flightline will probably be very short but I'll be sure to print any announcements you send me.

1996 CMA Staff

President:	John Michael
Vice President:	Tom DeWulf
Secretary/Treasurer:	Duane Smith
FlightLine Editor:	Jim Doty
Web Page Editor:	Tom DeWulf

Flight Instructors:
 Rich Dean
 Dave Decker
 Dave Dillman
 Mark Woytassek

Flight Instructors in training:
 Irv Anderson
 Tom DeWulf

Test Pilots for first flights of new airplanes:
 Rich Dean
 Mark Woytassek

Send your input for FlightLine to:

James H. Doty
 MS 124-300
 x2931
 jhdoty@crems.rockwell.com

Local Activities

July 13 — C.R. Skyhawks R/C Combat
 at Marion Airport,
 Marion, Iowa.
 Call: Scott Grady 366-4309
 or Kyle Friauf 364-3289

July 17-21 — Greater DesMones Aviation Expo
 Full scale and radio controlled air show
 Ankeny Regional Airport, Ankeny, Iowa
 Call "The Source" at 515-965-9000
 for information on any of these categories:

General Show Information.....6310
 Show Dates & Times6311
 Ticket Information/Prices6312
 Travel, Lodging & Camping.....6313
 Pilot Information
 Vendor, Exhibitor & Food
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 Regional Airport Information.....6316

July 19-21 — National Float Fly '96
 at Greater Ottumwa Park,
 Ottuma, Iowa.
 Call: Hobby Chest (515) 683-4436

Flight Training

Flight Training is available every Tuesday and Thursday weather permitting.

Tuesdays — Beginner training

Thursdays — Advanced training

Check the CMA Hotline 395-8888 for the latest updates on the training sessions.

In case of bad weather on Tuesdays Thursday will be used for both sessions.

On Saturday mornings with good weather there will usually be someone available to provide additional training.



Send your input for the CMA Web Page to:

Tom DeWulf
 tvdewulf@cacd.rockwell.com

1996 CMA Membership

<u>M/S</u>	<u>NAME</u>	<u>M/S</u>	<u>NAME</u>
108-103.....	Irvin Anderson	153-163	Darrin Nebraska
108-166.....	Geoffrey Barrance	108-136	Patrick Neu
124-114.....	Ross Beins	108-136	David Neu
124-111.....	Bob Buschette	137-136	Marion Payne
124-115.....	Raleigh Dean	120-105	Elio Picchetti
120-131.....	David Decker	108-136	Gary Prior
153-120.....	Timothy DeWit	124-123	Wayne Savold
153-264.....	Tom DeWulf	139-125	Gerald Showman
153-163.....	David Dillman	108-136	Duane Smith
124-300.....	James Doty	108-136	Brian Smith
106-183.....	Mike Eastman	105-152	Basil Tilley
153-264.....	Doug Emerson	124-111	Robert Tribuno
153-163.....	David Gillespie	124-111	Robert Tribuno (for Peter Tribuno)
153-163.....	David Gillespie (for James Gillespie)	124-111	Robert Tribuno (for Michael Tribuno)
153-163.....	David Gillespie (for Amy Gillespie)	120-131	Ron Menti (for Tony Veit)
120-131.....	Ron Menti	139-142	Charles Ward
108-166.....	John Michael	153-264	Bryan Wesner
108-166.....	John Michael (for Kevin Michael)	107-110	Victor Wolfe
		124-115	Mark Woytassek

John Crilley	Academy of Model Aeronautics	R/C Adventures
2540 Second Ave	5151 E. Memorial Drive	PO Box 284
Marion, IA 52302	Muncie, IN 47302	Marion, IA 52302

Is someone you know missing from this list?
Give them a call and ask them to *Come Fly with us in CMA!*