

FlightLine

A Monthly Publication of Collins Model Aviators

January 2000



**Frank Gutierrez's LT-40 gives
Geoff Barrance's Gentle Lady a lift.
See page 3 for details.**

Reminders:

- **Next CMA meeting is Thursday
January 6th at the 35th Street
Complex Cafeteria**
- **The next Build Session is
Thursday January 13th at the 35th
Street Complex Cafeteria**

📖 In This Issue:

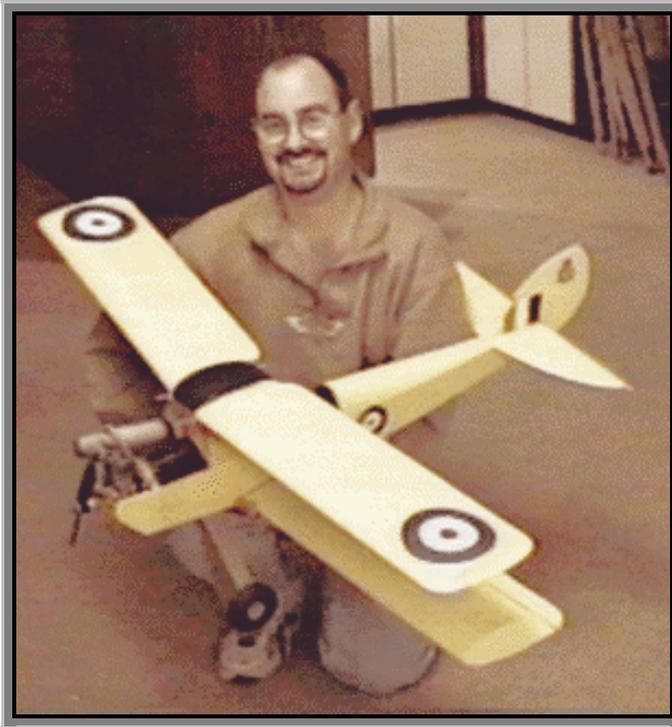
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CMA Web Page Addresses:

<http://bbs.cacd.rockwell.com/data/clubs/cma/>
<http://members.xoom.com/cma3257/>



Collins Model Aviators
Academy of Model Aeronautics
Charter Club #3257



President's Column

January 2000

By Jamie Johnson

Welcome to the new millennium and another exciting year of remote control modeling. It is with great pleasure and enthusiasm that I look forward to serving the CMA in the coming year. This past year was my first with the CMA club and I really appreciate all the great support provided by the club instructors and membership in helping get me back into the air after almost six years of being grounded.

A little about myself, I first learned to fly control line as a youth in Canada and progressed to RC in my late teens. While in the Canadian Airforce, I had the privilege of flying with one of the largest RC clubs in Ontario. Our Fly-In regularly pulled in over a thousand spectators and hundreds of flyers from all across Canada and the US. It was here my love and appreciation of the many facets of RC modeling grew. My wife of 16 years has had to put up with the indulgence in this hobby and now, the two oldest (of three boys!) are beginning to participate. She

has the patience of Job! Shane, our oldest, will be actively pursuing his wings this season, so this promises to be an exciting year. Hope my nerves can take it! I enjoy anything RC: cars, boats, gliders, powered aircraft, you name it. We are very privileged to have the use of such an awesome flying field.

There are several people I would like to thank for their efforts in the club.

Jim Doty for again agreeing to be the FlightLine Editor. The Membership is encouraged to help Jim out by providing input to keep the FlightLine the interesting paper we have come to enjoy. Steve Plantenberg for volunteering again to be the Web Page Editor and Frank Gutierrez for his creative assistance in the web page layout. The CMA web site has proven to be a powerful tool in passing information on to the membership. Gregg Lind, CMA's new Vice President, and Chris Heald our new Secretary/Treasurer for taking on the responsibility of Club Leadership. The CMA officers and the flight instructor staff plan on making 2000 one of our best flying seasons ever with more events and more fun.

Don't forget to pay your AMA and CMA dues if you have not already done so. You can't fly at the field without both memberships current. If you have a project in the works, feel free to bring it out to one of our Build Sessions to show it off. If you are finished in time bring it out to our Beauty Contest in April so everyone can ooh and ah.

If any of you have input or queries concerning the club, please feel free to contact me. My extension at work is x50984 and my office is located in Blg 124, second floor, C4. My email address is jdjohns9@collins.rockwell.com.

I look forward to meeting more members and having a great year of flying!

Jamie Johnson, CMA President →



Three-Two-One-Release!

By Frank Gutierrez , Geoff Barrance and Don Rosendale

Launching a glider from the top of an airplane takes a bit of coordination, skill, & luck. The following articles give three perspectives on flying piggyback which lead to consistent, safe glider launches.

The Glider Pilots Perspective.

By Geoff

Three—two—one—release! The glider smoothly leaps free of the carrier plane, soars upward and cleanly away. A touch of down elevator to prevent a stall and it settles into its usual slow, sedate glide. Now all I have to do is keep the nose into the wind and let her float gently to earth. The perfect launch!



Successful launch of the Gentle Lady on the second flight test.

Well, yes, it was more like that the second time out. But the first time, there was a great deal more adrenaline involved.



First takeoff attempt.

The take off was smooth enough, once the carrier plane finally got itself free of the ground drag and into the air. It seemed capable of a perfectly reasonable rate of climb, and the handling, though not as good as the impeccable behavior of the LT-40 when unencumbered by the glider and carrier cradle, seemed to be a bit better than with the carrier cradle alone.

But, because of the release mechanism's inability to pull free of a double set of elastic bands to hold the glider on the carrier, we'd gone ahead with a test flight with just a single set. As the carrier plane turned crosswind, and picked up some sideslip, it became very apparent that the single set of bands was not enough.



Glider canted to the right in the crosswind.

The glider canted over on the carrier until its wing was leaning on the top surface of the LT-40's. Not good I thought - that might be causing Frank all kinds of handling difficulties. Almost

instinctively I applied some rudder to try to bring the glider's wing up (no ailerons of course on a Gentle Lady!).

It didn't seem to make much difference, but it may have helped, because as Frank brought the carrier-ship out of the turn the glider settled back onto the saddle. But then the speed must have built up, because the next thing I was aware of was the glider bouncing up and down, stretching the hold-down bands. Again not good – might have been doing damage as it banged back down onto the cradle. Instinct cut in again and I applied down elevator to try to persuade it to sit back on the carrier. And again no instant improvement, but it did settle down eventually as the speed bled off. So now it was time for the release. Countdown complete, Frank throws the release switch. Nothing!!! Oh well, we will just have to try a landing with the glider attached. This is going to be interesting! So Frank takes the LT-40 a way downwind to line up for a gentle into-wind descent. My plane is still rocking and jumping about on the cradle. Suddenly the two plane's separate – Frank must have left the switch in the release position. It's a longish way downwind, and the sudden separation has left me pretty disorientated. Somehow I sort out the maneuvers, and settle the old girl into the long glide home.



Climbing to the launch point

Gentle Ladies don't have a lot of penetration capability into a breeze, and I'm worried if I have enough height to get back to the field – I don't want to land out in Larry's newly seeded area. Slowly, slowly, slowly my plane gets bigger, and at last I'm

confident we're going to make it. A smooth landing on the grass and a big sigh of relief! That was fun.

Yes, we did both risk our planes, but we believed it would be OK, and it was. It was something that involved a bit of development and test flying, and that made it interesting and exciting. And now I have the ability for my glider to be taken to a good launch height, so I can enjoy that gentle drift back to earth. I can hardly wait for a nice day with some good thermals to see if I can beat that 35 minute longest flight I did way back in 1989!

The Glider Pilots Perspective.

By Don and lead in editorial by Frank

It was a cloudy day, spitting rain. Geoff, Don and I decided to have a go at it. I invited Don Rosendale as my guest. As many of you may remember, Don came to our club in January and demonstrated how to cut and sheet foam wing cores. His Bird Of Time is a higher performance glider than Geoff's and was willing to risk his plane on my very convincing invitation... It worked once; it might work again, let's see!

Don gave the following comments to me in an email:

My initial thoughts were:

Are we going to get off the ground with that .46 LA motor on the front?



**My, look at that angle of attack!
Is he going to stall and go into a spin?
Talk about pucker factor!**



Wow, it's just moving up there, slowly but surely!



I think I can guide where he goes by moving my rudder and elevator. Do I dare assist him by using my controls?



Gee, we are getting up there, past hi-start range!

Here we go... Release is smooth, like we planned it or something.

I can't believe I'm getting thermals in this lousy weather.

Wow, two 10 minute flights! I think I got higher than I do with hi-starts.

This is neat! Beats towing all to pieces!

The Carrier Pilots Perspective.

By Frank

It all started as my son Drew, and I were kicking around the idea of building a Space Shuttle glider and releasing it off the top of an airplane. The PT-60 seemed to be a good candidate for this adventure but its crash last year put the idea on hold. By the grace of Van Snyder, he gave us the remains of his LT-40 before he left the company and from this I constructed a new tail dragger configuration with a full span flap/aileron function using an 8 channel Futaba computer radio. An LT-40 normally wouldn't use half the functions of this radio so why not invent some!

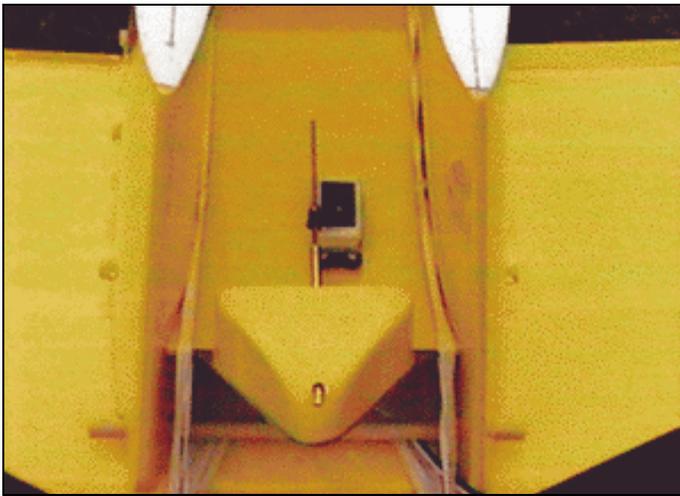


LT-40 readied for first flight test.

Geoff Barrance and Mark Woytassek had mentioned to me several times that it would be great to get a glider to a high altitude for long duration flights. So I casually began research on towing gliders. Where to place the towline on the airplane and how much line is required for stable flight. This would require that the gliders have a release mechanism in the nose, which may require rework on the glider. The next option was to design a carrier that would fit on top of the wing, be removable and have its own servo to activate the release mechanism. Adding this function along with the current configuration allocates 7 switches and one rotary knob on the transmitter to the operation of the LT-40. I still have one switch and two rotary knobs that aren't in use for

this plane. Using the gear switch seemed a logical choice, as it is located on the throttle side of the transmitter.

Geoff and I talked several times about the engineering aspects of the carrier pod and the aerodynamic factors that such a device would impose on the LT-40. One of our major concerns was the aerodynamic pressure created by the shape of the pod and the wing of the LT-40 and Glider. We expected it would create noticeable drag but I felt it would be an asset to keep the forward speed down at higher throttle settings.



First release mechanism setup

The first attempt at constructing a release mechanism proved to look better than it worked. A polished brass pin fed through a plastic Nyrod to the servo proved to have a very smooth static operation. The problem was that the friction of the rubber bands around the pin overcame the torque of the servo and prevented the release of the glider. One set of rubber bands instead of two was tested at the field and seemed to release on the ground good enough for the first flight test.

The LT-40 had enough of power with an O.S. LA46 to carry itself and the pod for aerodynamic stability test flights. On the first test flights we had a strong wind from the west and the plane wouldn't turn with ailerons after takeoff. The carrier pod acted like a huge dorsal fin on a fish and the aircraft rolled nicely but wouldn't turn. I quickly added a generous amount of rudder to help the turn as the plane just

wanted to fly away on a straight path not caring if the wings were level or not. The rudder on the LT-40 is large and I am thankful for that. The plane required coordinated rudder and aileron to make smooth turns with the carrier pod attached.



**Carrier pod flight test without glider.
Notice flap position.**

The drag is significant with this device attached and certainly makes the LT-40 behave sluggish; it's especially interesting to fly in a stiff crosswind.

After several test flights with the pod only it was time to mount the glider. Geoff felt that one set of rubber bands would be enough to hold the glider although I had some reservations about stability and control if the glider tries to lift itself off the plane. I was able to get a smooth takeoff and establish a positive climb. The LT-40 seemed to fly better with the glider attached than by itself with the pod only. The added lift of the glider certainly was a plus but as I turned crosswind the glider began to cant to one side or the other with its wing looking like it is being pushed over onto the LT-40 wing by the wind. It didn't seem to affect the LT-40's flight performance so I continued to get the plane into position for the first release.



Mounting the Gentle Lady

Three—two—one—release! Nothing! It is stuck. Ok we can handle this. I will wiggle the LT-40 and Geoff will attempt to wiggle the Gentle Lady. It is still stuck! The first attempted failed and I bring the LT-40 back to set up for landing carrying the glider. On down wind I let the LT-40 speed up a bit hoping the glider would pull itself free from the plane. The lift of the glider was amazing pulling itself and flying away from the carrier pod being held by the rubber bands. The force must have been incredible as we could see a noticeable gap between the glider and the pod.

Through the excitement I failed to reengage the pin as the plane continued to fly down wind. I turned onto the base leg and the glider canted again due to the crosswind throwing its fuselage off center of the LT-40 and the wing tipping away from the wind. The glider separated from the carrier pod in the worse location and it was as if it slid away from on top the plane. Geoff and I were surprised, as we were not expecting the glider to detach from the plane at such an awkward position. Fortunately the Gentle Lady had good enough penetration to avoid going for a long walk. Both aircraft landed safely without a scratch and that ended the first flight test of the glider launch system.

It was back to the drawing board. We had so much fun the first time we just had to try it again. This time I redesigned the release mechanism to use a

90°-bell crank and set the push rod to over center the servo.



Second release mechanism

The following Saturday we were ready to go for the second flight test. I began with some pod-only warm up flights. Then we mounted the glider with two sets of rubber bands to hold it on tight. Another series of ground release test were accomplished with great success. The wind was from the east and we could take advantage of the dirt area to the southwest side of the field. Check flight controls on the glider.... check, check flight controls on the plane..... check.

As a side note, the LT-40 won't take off with the glider unless full flaps are set. The spanwise flaps increase the camber of the wing creating higher lift and drag. Without flaps the O.S. LA-46 wouldn't be enough engine to get the aircraft airborne and fly with the added weight and drag. The angle of attack becomes very high and the plane is nearly flying on the backside of the power curve at full throttle. Glider pilots have told me I should get a bigger engine.

With full flaps set, point into the wind and away we go! The LT-40 lifted off the ground gracefully and began a rock steady climb.



Setting up for takeoff.



Full flap takeoff is a must.

Up-up-up to an estimated altitude of 600 feet or so for the first test launch of a new release mechanism.

Three—two—one—release! SUCCESS!

The Gentle Lady separated from the LT-40 clean and crisp. A short formation flight was observed as the speed of the glider decreased and the plane slowly flew away. That went so well that a second flight was conducted to validate repeatability of the release mechanism. I climbed up over 1,000 feet altitude and the second release of the day proved to be as successful as the first. It gave Geoff 10 minutes and 15 seconds of flight time on the glider with a stiff head wind and without any thermal activity.

My LT-40 fly's stable and with enough lift, power and parasite drag to carry gliders at the right speed to any altitude the glider pilot desires. This is a new level of fun for me and I would gladly extend an offer to CMA members with gliders to give them a high altitude lift on a sunny afternoon.

Frank Gutierrez, Geoff Barrance, &
Don Rosendale →

CMA Meeting Minutes

By Doug Emerson

2 December 1999

Frank Gutierrez called the meeting to order in the Main Plant Cafeteria (35th street facility). Twelve members attended. The minutes from the previous meetings were approved as read. Doug Emerson gave the treasury report.

Old Business:

There was no further discussion on the LT-40 club trainer, but Frank reminded us that this is a planned discussion item for the January meeting.

Frank also reminded everyone that December 9, 1999 is the second build session for the season. It will be held at the Main Plan Cafeteria.

Frank described the current parking instructions for the flying field. The owner said winter flying is OK, but we must park along side the driveway in the grass and walk to the flying area. This is the only parking available at this time as all the other areas are seeded. We are not allowed to drive over any other grass on the property. Frank asked all members to please be sure you know where to park before heading out to the field. Check the web site, as it will have up-to-date information on field conditions and instructions. You can also dial the 5-8888 number to get current information.

The vote for the January officers was completed. The new club officers for next year are:

President: Jamie Johnson

Vice President: Gregg Lind

Secretary/Treasurer: Chris Heald

New Business:

Frank asked members to get your dues paid so you can take advantage of good winter weather days to fly and to continue receiving the FlightLine newsletter. Memberships expire on the last day in December. If you haven't renewed before the FlightLine deadline, you will miss the mailing.

Mark Woytaszek brought some miscellaneous model airplane “stuff” from a friend that indicated that he would donate the partially build PT-40 trainer airplane to the club. However he would like to get some compensation for the other items. Various members grabbed up the bargains.

There was some discussion on the upcoming build session. Plans included videos, pizza, and of course, some building. In other discussions, it was pointed out that January meeting should include electing non-ballot officers for the club.

The meeting was adjourned at 5:45 PM
Doug Emerson, CMA Secretary →

Tips and Tricks

From the September National Newsletter

Servo Setup

by Joe Jackson

Servo mounting should be done with rough treatment and vibration in mind. If you have some leeway with servo location, we suggest you do a preliminary balance check and locate the servos fore or aft accordingly. No need to load the airplane with more balance weight than necessary. We favor maple or other hardwood beams installed across the radio compartment. We also have used plywood plates with servo holes cut into them. Be sure the plywood is thick enough to cover the screw threads. If not, glue on another layer of wood. With either of these arrangements do not rely on butt glue joints. Add pieces of sheet wood above, below, in front of and behind the plywood edges where they butt against the compartment sides.

We have experienced failures with plastic servo trays sometimes included in radio sets. A plastic tray carrying the weight of four servos but mounted in the aircraft with only six screws near the edge of the tray will break at the edge holes during a rough landing. This type of failure is particularly deceptive as the controls may appear to be normal on the ground.

Servos come with rubber grommets which fit into the mounting lugs to provide vibration isolation. To function properly brass ferrules are inserted into the grommets. The ferrule controls the amount of compression applied to the grommet by the mounting screw. When the screw is tightened until it contacts the ferrule, the correct compression is attained. The ferrule must be inserted from the bottom so that its flange contacts the mounting surface. If inserted in the other direction the flange will be under the screw head (not needed) and the sharp end of the ferrule may cut into the mounting plate causing excess grommet compression. Position the servo so that it contacts the airplane only through the rubber grommet.

In general it is better to position the servo with its long axis fore and aft. If mounted across the airplane, pushrod pressure will cause rocking. This consideration is less important for throttle servos.

from The Fly Paper, James Perrine, editor
via The Digital Dope Sheet, Paul Yuhas, editor
Box 156, Dunlo PA 15930 →

Pitch Setup for Helicopters

by Tri Le

In helicopter operation, there are many ways to set up your machine depending on your ability and its performance.

The left stick on the helicopter transmitter controls the throttle and pitch. In normal mode, when the stick is at the bottom end, the pitch and rpm will be at the minimum. When stick moves up, the pitch and rpm will also be increased proportionally until it max's out at top end.

Two other modes, called idle up one and idle up two, are used for aerobatics when you ready to make your nerves jump up and down.

With my helicopter the pitch set up is -3 degrees for low end, and +7 degrees for top end in normal mode. Some of you might ask how could the

helicopter fly with negative pitch—it can be used for inverted flight, or auto rotation.

Before I go further, I would like to give an example. Let's say you are holding high speed running fan, blades with +5 degrees pitch vertical. The fan would pull your hands up. And what happened if the pitch of the blades changed from +5 degrees to -5 degrees? Of course the fan would push your hands down.

The sudden force, and speed of directional change acted upon your hands depends on how fast or slow the pitch of blades changed from a negative to positive, or vice versa. When a helicopter flies, the speed of the rotor plays a major critical part of its maneuvers and particularly when the engine decides to quit.

If you notice the engine quit suddenly, the only way to save your machine is by applying negative pitch (-3 degrees is good). While the helicopter is descending with fast rotor speed remaining, a negative pitch will help to push the helicopter down and helps keep the fast rotor speed which you will need for flare when the helicopter nears the ground. Hopefully, this will keep it in one piece.

This is called autorotation—using all energy left from the rotor blades to create a safe landing. (I practice semi-autorotation a lot to get my mind and hands ready. Sooner or later the engine might quit or the helicopter might lose its tail blades.

Two weeks ago, while flying figure eight practice, the engine quit. I don't remember how I saved the bird from 20 feet above ground, but I did a nose in autorotation perfectly. The bird didn't bounce once. When I came to, I was amazed.

However, too much negative pitch when doing auto rotation can be deadly. Because the speed of the descent will be so fast, it will be very hard to handle at touch down.

For the beginner, the negative pitch is not required while learning how to hover. It is recommended that the lowest pitch be +1 degree. This ensures that if you pull the stick back suddenly, and drop the model

on the ground, the blades will still be lifting and not pushing themselves toward the tail boom.

Once you are ready for forward flight, you should add the negative pitch at the low end of the stick. Otherwise when your helicopter is flying at 200 feet, with wind blowing around, you will have a difficult time bringing it down to the ground. With a lot of practice, you will be as good as Roy Wright. Until next time keep the big training gear on and have a good time.

by Tri Le

from The Millington Barnstormer

Victor Laurent, editor

Vic14rc@aol.com →

Murphy's Law Applied to Model Airplanes (part 1)

- Trees are ALWAYS closer than they appear.
- To calculate the location of the exact rear center underneath your workbench, just drop a small screw.
- The screw you forgot to check during your preflight will always be: A: The first one to come loose. B: The one that causes the most damage when it comes loose. C: The one behind the transmitter.
- When the best thermal bubble of the day appears, the receiver or transmitter batteries are empty or too weak.
- If you can't go flying tomorrow, the weather will be perfect.
- The right way to cover a certain shape is always found out the day after you just covered it the wrong way.
- If it's not a tail dragger, it will be.
- The number of radio hits is inversely proportional to the flying skill of the pilot.
- It always rains on your day off.
- Like milk, every airplane has an expiration date. Some are sooner than others.
- When building a model, you will always find the missing part, just as you have finished duplicating it.

from The Flying Penguin

Robert Osorio, editor

rosorio@soldcentralfl.com →

Heads Up, CMA Activities

January 2000

6-Jan 5-6 PM Meeting
13-Jan 6-9 PM Build session
21-Jan 5:00 PM Flightline deadline

February 2000

3-Feb 5-6 PM Meeting
10-Feb 6-9 PM Build session
18-Feb 5:00 PM Flightline deadline

Local Events:

2/06/00 Waterloo, IA (E) Blackhawk RC Pilots Annual Swap Meet. Site: Local 838 UAW Hall, 2615 Washington St For info: Dennis Nissen, 1021 W 1st St Cedar Falls IA 50613 PH:319-266-3060. Sponsor: BLACKHAWK RC PILOTS

2/13/00 Davenport, IA (E) Swap Meet. Site: IA National Guard Hangar, Davenport Airport. For info: William Whetstone, 28164 219th St LeClaire, IA 52753 PH:319-289-4329. Annual swap meet. US Hwy 61 north of I-80, exit 124 west to Harrison St, 1/2 mile north. Swap 10AM to 3PM. 8 ft tables \$8, admission \$2. Reservations requested. Sponsor: DAVENPORT RADIO CONTROL SOCIETY

For up-to-date AMA events schedule see the AMA web page:

<http://www.modelaircraft.org/Comp/Contest.htm>

Congratulations: To Geoff Barrance, Frank Gutierrez, Mark Woytassek who completed the All-Season patch requirements flying in all twelve months this year.

For an AMA membership application:

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



Send your input for the CMA Web Page to:

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★2000 CMA Staff

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Vice President: Gregg Lind x5-0008
Secretary/Treasurer: Chris Heald..... x5-0793
Field Marshal
FlightLine Editor: Jim Doty x5-2931
Web Page Editor: Steve Plantenberg . x5-9625

Senior Flight Instructors and Test Pilots

First flights of new airplanes:

Frank Gutierrez
Mark Woytassek

First flights of new helicopters:

Crist Rigotti

Flight Instructors in training:

Irv Anderson
Jamie Johnson
Steve Plantenberg

For membership information:

Contact: CMA Secretary Chris Heald
MS 105-191
x5-0793
cdheald@collins.rockwell.com

Build Sessions

Build Sessions are held every second Thursday of the winter months in the Main-Plant Cafeteria, to provide hints, tips, and help in building models. Build Sessions are open to everyone who is interested in RC model building.

Send your input for FlightLine to:

James H. Doty
MS 108-205 x5-2931

jhdoty@collins.rockwell.com

I need photos of models and model projects for the cover, as well as full articles

CMA voice bulletin board 295-8888
For flight and weather information



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Muncie, IN 47302**

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