

The THUMB PRINT
 Thermal Thumbers Of Metro Alanata

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AMA
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NFFS

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HEADS UP

Welcome to the first issue of the year and one of my favorites, the annual nag issue. We were able to distribute it this time without much drama and any omissions. Maybe we're getting a bit more efficient at this digital format. We (frankly, Brook the Younger) were able to monkey with the software and keep the file size reasonable even though we included a boatload of pictures the membership was generous enough to provide. Those with internet connections offering poky download speeds might still find it a bother, but I hope your wait is worth it because everybody likes pictures. A picture might be worth a thousand words, but costs several times more in bytes.

A number of news items are provided, foremost among them a report on our recent annual banquet. We're also very pleased to present the contest dates and venues of the upcoming spring indoor season and the final details on the Peach State Indoor Champs. We follow that with the dates of the outdoor flying season, so there's plenty for you to do. You're reminded of the annual gathering of the blessed at the Southeast Model Show in Perry. Two members have stepped up to give their time and talents on important matters for our sport and the details follow. Sadly, two members had and have recent health issues and the details follow. Geoffrey provides the minutes from the February meeting at our new digs at St. Lukes Presbyterian.

Al Pardue was kind enough to provide a new masthead for the ETP. This is the first time in about twenty years we haven't used Linwood's old graphic campaigner. It had a good run and held the point for our hard news, unnecessary blather, much joy, some sadness, and a bit of wisdom along the way. We'll be pleased to use Al's masthead for the next few issues. However, I really think we need a thumb in there somewhere. Anybody out there want to have a go? (Right before Brook and I sent this screed down the cable, we noticed Al misspelled "Atlanta." I'm sure the "Yella Hamma" can fix it by the next issue. Rules of the newsletter trade: if you admit to a mistake, even if you print it, it doesn't count!)

That's it for me from here for now. Try to glue some sticks together. Show up somewhere Thumbs are gathered the next few months.

BRACE YOURSELVES

First, let's get the big nag out of the way. If you haven't renewed your club membership yet, you've missed the early bird rate. Now, it's going to cost you thirty dollars, American. You know who you are, pilgrim. Fill out the form that follows and send it, along with your check, to Diamond Don, post haste. That's a good Thumb.

LOOKING FOR MORE OF THE RIGHT STUFF

I'll start with the National Free Flight Society. This is the first and foremost special interest group(SIG) within the AMA panoply that represents and promotes the interests of the free flight community. It's also the most shameful omission on your part if you're a free flight modeler and you're not a member. The next time you hear of circumstances where Uncle Sam's best and brightest didn't get sufficient support from the AMA for access to flying fields and other facilities, the fruits of lobbying in Washington, or a fair shake in insurance coverage, blame yourself. The next time you see some Third World ragamuffin, or privileged ward of a managed economy from the Pacific Rim, or Slavic Ubermensch from the Eurasian landmass walking past one of your own to the awards podium in international competition, blame yourself. The NFFS is doing its part; you do yours. Membership comes with a great monthly magazine, edited by expatriate Walt Rozelle, that you'll read cover-to-cover, not just idly flip through. The membership form follows. Do it.

If you like doing it "old school", the Society of Antique Modelers(SAM) is your outfit. As an active SIG, SAM fosters the building and flying of model designs before our modern era and encompasses both free flight and RC flying, so there's plenty of models to chose from, whether they're powered by rubber, gas, electricity, or gravity. Membership includes a great monthly magazine. If you can't find something you like in all these choices, "yo' min' juz ain't riite!" The membership form follows. Do it again.

The Flying Aces Club is the last subject of my pleadings this go-around. This delightful assemblage within the free flight community concerns the art and science of the flying of free flight scale. These irresistibly cute models shouldn't need much of an advocacy, but here we are. Every year, FAC GHQ does a multitude of things to enhance scale flying and let's give credit when it's due. The Flying Aces Club does a much better job than the AMA does in the promotion and management of scale free flight. And for that, we're grateful. (Lin, having pandered hereby, that stab tilt rule is still a turkey, not coincidentally, an earth-bound, non-flying bird!) Membership comes with a newsletter every other month that's abundantly blessed with plans, photos, contest reportage, and other items of interest and it always delights. Send your fifteen dollars(\$15.00) to: FAC GHQ/ 3301 Cindy Lane/ Erie, PA 16506. It's money well spent.

Aside from an occasional cheap shot at some of our recalcitrant slackers, I'll close my ranting for this year. The sinners among you will hear from me again at strategic junctures throughout the year. You know who you are and you know what to do. Be forewarned: I'm watching you and keeping a list. I don't know if Sweet Baby Jesus listens to me, but Santa Claus sure does.

BEHIND CLOSED DOORS

We've two dates at St. Lukes Presbyterian's Grand Hall this spring, April 8 and May 27, and another two dates at North Cobb High School, March 4 and May 13. We're holding the 2006 Peach State Indoor Champs at North Cobb on May 13, all the details can be found in the flyer that follows. Our website has good maps to both venues. Be there.

St. Lukes Presbyterian is easy to find. It's about one mile west on Mt. Vernon Road. from the intersection of Chamblee Dunwoody Road, downtown Dunwoody's main drag. If you're coming from Hwy. 400, exit at Abernathy Road and head east. Take a left onto Mt. Vernon at the second light and proceed to and through the Golden Ghetto. If you're coming from I-285 just exit at Chamblee Dunwoody, head north and take the right onto Mt. Vernon. Be careful at the North Shallowford and Peeler Rd. crossroads; hang the left to continue on Chamblee Dunwoody. Some idiot highway engineer made an awful mistake 160 years ago. (No offense, Richard.)

North Cobb is easy to find. It's a few miles west of downtown Kennesaw on Old Highway 41/Hwy. 293 at the Blue Springs Road intersection.

UNDER THE CATHEDRAL OF THE BIG BLUE SKY

We've sanctions in the works for the entire outdoor season at the North Georgia Turf Farm. We're starting in April and holding contests every month through October. I won't go into too many details here because the website already has them in spades. I'll just mention the dates, so you can get them on your calendar. Mark thusly: April 23, May 21, June 10 and 11, July 9, August 27, September 23 and 24, and October 8.

We are very fortunate to have the use of the North Georgia Turf Farm, so let's not mess it up. Our use of the field depends on the continuing good graces of the owners and it's up to every member to do whatever is necessary to maintain our good relations with them. You don't want to be the one to screw this up. (Talk about loading your sorry life cycle up with bad karma.) If you're in a situation out there and you don't know what to do, call somebody who does. Everybody who has a job or a pension has a cell phone. Stupid or lazy won't wash here.

For the record, I'll go over the rules one more time:

1. Go out of your way to be nice to the office and field personnel.
2. Current club members can use the field whenever they want. AMA members can use the field on contest dates.
3. Don't let them lock you in on the weekends or in the evenings; they won't baby-sit you.
4. Unless it's a contest, go to the office first and identify yourself as a Thermal Thumber. You might want to ask them where they're harvesting, so you can avoid the area.
5. Clean up your mess before you leave and this includes cigarette butts, rubber bands, and fuse nubs.
6. Watch your kids and non-modeling friends. Tell them how to behave and make them do it.
7. You can retrieve with your car, bike, or on foot. However, not a wheel of a motorized vehicle goes on the grass. Stay on the gravel roads. Don't try to cut corners and take shortcuts. We're watching. (If you can't park your car and walk 100 feet to your model, check your feeble backside into a nursing home.)
8. Go out of your way to be nice to the office and field personnel.

ANNUAL EATS

We circled the wagons again at the Powers Ferry Crowne Plaza for our annual banquet and Mother Nature merely unloaded a few bullets from her magazine with a day and evening of cool overcast and rain. She took the day off from her usual provision of ice, snow, sleet, bridge collapses, and interstate road fires. At this pecking, all made it safely to and from the event.

We had forty-odd Thumbs and their wives, plus Debi Huffman, aeronautical programs manager from Dekalb County's Fernbank Science Center. She briskly reviewed the center's facilities and programs in an entertaining fashion. Did you know the center has the southeast's largest telescope and it's open to the public every Friday evening? I had no idea the center had such an array of facilities and programs. I've been to the Fernbank Museum on numerous occasions, but the center's business was a pleasant surprise. (Y'all's tax dollars at work; I help finance the mediocrity of the City of Atlanta and Fulton County.) For the record, Debi was very impressed with our collective handiwork. We can expect to see some kids from her programs dropping by from time to time.

We had our usual bounty of recently completed projects on display. Al Pardue lead the way with five magnificent models, all immaculately prepared. Al is clearly our most polished builder. Everything looks like it came out of a mold. This year, he brought along his new Remoffett, Burd Korda, Marie II, Ramrod 432, and Erie Daily Times. Dohrman Crawford brought two darling Dime Scales, a Waterman Gosling (love that red and black color scheme!) and a Bristol Gypsy Racer, and a sentimental labor of love, a Guillow Cloud Buster. Gary Baughman wowed this writer with a stunning ME-109E in, I'm guessing, a 28 inch wingspan, as well as an example of a Senior's Model, what they're building in his ELM classes. Graham Selick brought his new Mini-Pearl and a gas-powered version of his national record-holding CO2 model, the Accorte. John Barker brought three models, his Embryo, Bostonian, and well-traveled Dime Scale Curtiss Robin. Your editor brought his freshly covered Casano Stick wing with the new lightweight polyester tissue. (Many of us have been waiting on a lighter version of the standard Polyspan. Well, it's here and clearly has potential, but does offer some challenges to the builder. My impressions are outlined later in this issue.—DM)

The awards ceremony furnished a re-shuffling of the deck of the vaunted, usual suspects. Gary took home the George Perryman Perpetual Award for high point with the bounty from his indoor flying and just enough outdoor points to outpace the second place Brook Dixon, Sr. Jim Altenbern garnered a solid third and, while down the chart, Dohrman narrowly outdistanced John for a fourth to his fifth. Gary won the indoor champion trophy and Jim won the outdoor, both by wide margins.

The Model of the Year tourney brought much more profluent results than last year. We can thank Fearless Leader Emeritus Frank for this very good idea. This year we had eleven participants flying the Cat-A-Piglet with Jim besting Dohrman by a comfortable margin. Graham won the David Raymond CO2 Trophy and Gary won the Grayson Anderson Mass Launch Trophy. John reprised his earning the Bob Baker Old Timer Trophy by a narrow margin. (The totals remain low in the quest for Ed Lidgard's old Wakefield Cup; we really need to fly more OT events in 2006. Be advised, y'all, I'm shooting for this one in 2006.—DM)

This year we did something a little different with the Norm Purdy Service Award. In the past, we've given the award to an individual or group who had done something significant for the

club. This year we gave it to two people who sacrificed much in the way of personal resources and time and provided much needed care and concern to a club member in great need. The late Wayne Brock's demise was slow, miserable, and depressing to witness. His passing was made incalculably better by the actions of Yvonne and Clarence Purdy. All we can give back to the Purdy's is our gratitude, but it's as heartfelt as anything could be. (I can't help but think that, if there is a hereafter and a part of us does live on in some fashion, your daddy must be very proud of you, Clarence.)

We announced a retreaded officer slate for 2006: Howard as president, Barf as veep, Geoff as secretary, and Diamond Don as treasurer. No one else wants to be newsletter editor, so I'll continue to slog on in that regard. Many thanks to everyone for hoisting their respective yokes again.

Dohrman gave more information about our new meeting site, St. Luke's Presbyterian in the Golden Ghetto of Dunwoody and re-affirmed his plea for us to get the "bidness" part of the meeting out of the way ASAP, so we can get to the three hours of fun and unfettered indoor flying in the Grand Hall. (See you on the third Monday of every month.)

Gary gave a summary of his efforts to date with his senior classes in Marietta. He provided background on ELM, a senior's program under the auspices of Cobb County. I don't know how widespread ELM is, but it's caught the attention of the Pensacola group and upper reaches of the NFFS leadership. (It's been this writer's long-held belief that focusing only on youth outreach programs was overly narrow and the NFFS needed to broaden their scope. I'm no expert on it, but ELM looks like a darn good idea to me. We'll try to have more details on the program in a later issue. Good news travels fast. Gary is making a presentation on the ELM program at the upcoming NFFS BOD meeting.-DM)

Gary also updated us on his efforts to secure some indoor dates this winter and spring at North Cobb High School. Gary is mentoring the school's TSA program again and working with the administration in other matters. The gym is located a few miles west of downtown Kennesaw on Old Hwy. 41 and is a good category II site with a thirty-four foot ceiling and large floor area. Stay tuned for more news as it develops.

We had a good night. Let's do it again next year. Many thanks to Dohrman for the footwork.

A GATHERING OF THE TRIBES

This is a reminder to plan to attend the Southeast Model Show in Perry on March 3 and 4. There are other swap meets purporting to be the largest one in the country and world, but rest assured, they're all pretenders to the throne. With well over eight-hundred vendors, our home-grown rendition is the real deal.

Jingoistic bombast aside, you really need to drive down and check it out. Although the offerings are well in excess of ninety-five percent RC, nuggets abound here and there. I always manage to spend too much money on things I don't really need at very reasonable prices.

The swap meet is held in several indoor arenas at the Georgia State Fairgrounds. Easy to find, it's just off I-75 at exit # 135. More details can be found on the big ad on page 143 of the January issue of "Model Aviation."

There's always a major AMA, SAM, MECA, and NFFS presence, so for officious haranguing purposes, there plenty of targets of opportunity. Not that you should dwell on the negative. All potentates and subalterns of volunteer, service organizations like to hear when they're doing

something right; throw in a little carrot with the stick. I, for one, have always found the AMA folks very chummy.

THUMBS IN SERVICE

Webmaster Bill was appointed to the District V Indoor Contest Board recently and will hoist that yoke for us all. Bill is a good man for the job and brings several needed qualities to the board. He's an active flier and is familiar with most of the indoor classes, specializing in the glider events and the more esoteric, indoor duration events, aka, the really hard ones. He publishes the occasional article and/or plan and knows all the indoor cognoscenti and is a fixture at Johnson City. Since he was involved in the engineering/construction business for so long, he'll probably bring a practical perspective to the rules review process. Also, he's done about as much youth mentoring in our sport as anybody and that background couldn't hurt.

The Thumbs continue to usurp AMA/NFFS territory. Why not? Some gang of idiots is going to run things; it may as well be us.

At the February meeting, Richard Schneider announced some particulars on the World CL Scale Champs in Sweden this year. He's on the team as one of the managers. Well done, sir. They're selling button/badges of same as fund raisers for the team's expenses. He sold quite a few at the meeting and he has more if you're interested. Ten bucks, American, for a good cause. BTY: Richard also serves on the District V Scale Contest Board.

Sweden, eh? That venue will make up for the trip to Muncie Richard and his bride made the year he competed on the USA Scale CL team for the global glory. I'd say Sweden will be an upgrade; I doubt if you'll see much in the way of corn or beans.

THUMBS ON THE MEND

Don "Mr. Free Flight" Peacock was in the shop at Emory for elective heart procedures. He got an angioplasty or some such thing. After a two night stay, he went back to his gentleman's forester estate in Pineview. No doubt soon he's back at his usual, torturous grind, walking around the woods, playing with his dog, dozing through a few light chores, and driving into town to run a few errands. It does fill up the day.

Our OFB Sandy Downs has had some serious health issues. At this writing, he's at home, just back from Cobb General where he's had a round of tests and some recent surgery. Things appeared a bit dire for a while, but he's doing much better now. I'd rather not go into details on the www, so if you haven't heard the details, contact me and I'll get you up to speed. Better yet, call him. He's up and around.

ABOVE THE GNAT LINE

Anybody much north of the Fall Line won't have a clue what the Gnat Line is. Or the Fall Line, for that matter. To the geographically uninformed, the Gnat Line is that environmental boundary of altitude, heat and humidity beyond which the gnat isn't an annoying factor in your daily life in the spring and summer. This area encompasses the majority of the coastal plain

from the Virginia Tidewater to the Texas Piney Woods. Down in Savannah, one goes “a-swattin’” on a regular basis.

These Dixie “no-see-ums” are a bane to the outdoor life, not to the level of aggravation of the mosquito, or “skitter” in local parlance, but still a major hassle. The little SOB’s don’t even bother to bite; they just swarm about your head. At least the “skitter” is on a righteous mission. If you know what the “skitter man” is, you’re familiar with the gnat.

Well, we’d better get used to the word because we’re going to be fly a model of the same name at our new indoor meeting site at St. Lukes in Dunwoody. I forget who found it, whether it was Bill, Dohrman or Frank, but several examples are in the air already. Frank’s rules of the road were sent down the cable along with a drawing. Word is you can build one in under an hour.

If you don’t have e-mail, let me know via the good graces of your telephone provider. I’ll shoot them to you via the Federal government’s snail mail. (“Hey, cuz, if’in you ain’t fightin’ da power, you juz pimpin’ for da man.”) I suspect many of us will be flying this little guy with some vigor in the next few months.

A TEMPEST AWAITS

There’s a line or two in some of the newsletters I get to the effect the good people at Gizmo Geezer are about to introduce an all-foam ARF P-30 for sale. No other details are available at this time, as far as I know. My compliments to those creative and crafty Canucks. They’ve done it again.

I can’t wait for the cacophonous furor to erupt when it hits the shelves. And heaven forbid it should fly well. I predict extreme adherents to the Builder of the Model(BOM) rule will go bananas and forecast the End Time and Final Days.

First, a little history. Back during the dawn of time in the mid-nineties, Gizmo Geezer began selling their wondrous front-end, which included their re-pitched props. Immediately, some hailed the new product as a boom to the P-30 event and some as a bane to same and an obvious violation to the AMA’s rules. After a great deal of thrashing about in the free flight press and a special huddle of the rules committee, it was appraised as permissible for use.

We can expect the same “ Sturm und Drang” if and when this ARF P-30 comes to market. Extremists will lambast it, regardless of the facts. Wiser heads will actually look at the model and review the BOM in this context. To this writer, it’ll boil down to how much assembly will be required to fly it. If it comes with the GG front-end, a rudder and stab you have to punch out of a sheet die/crush style, a long wing blank you have to assemble in some way by adding dihedral, and with a fuselage you have to fiddle with in some significant way to get all the parts together, it’s legal, folks.

We can expect a lot of rhetoric about the “fairness of competition” point of view, an old saw we needn’t belabor much here. Let’s just say many will make the statement that this ARF will be unfair because they’d be competing against people who “just bought their model.” Never mind there might be a legal minimum of assembly required to get it in the air; this is a mere boilerplate technicality.

Let’s put the harsh light of fact and logic on the fairness issue: at that future contest, you’ll be “flying” against people who bought and assembled an ARF, as well as against those who built their model in the traditional sense. More precisely, you’ll be “competing” against the same

people you're competing against now. I don't think this is a subtle point. No one wins a regional or national P-30 event by chance or luck. It just doesn't happen.

And by the way, when some ten or sixty year old shows up at the NATS with the ARF P-30 looking to fly it in competition, you can be the one to tell him he can't fly. I won't because I'm not scared of anybody with an ARF P-30 beating me. Only experts are going to whip me in P-30. No brag, just fact. What, exactly, are y'all afraid of?

Anything that puts a free flight model in the hands of a man, woman, or child is a good idea. We need to be obsessed with getting more people to fly free flight models, not the opposite.

A NEW COVERING ON THE MARKET

Many of us use Polyspan and find it a very good covering material, economical, easy to use, puncture resistant, and offering some torsional strength. The only drawback is it's too heavy for many uses. I've been happy to use it for duration rubber fuselages of anything like a Gollywock or larger and I accepted the weight penalty. However, the penalty is just too great for wings and stabs of even the largest models, including the big Lanzo Stick. Many have wondered about the possibility of someone in the world finding a source of the same material, only lighter.

Well, long story short, Mike Woodhouse has found such a material in the form of a lightweight polyester fabric and he's bought and inventoried a big batch of it. It doesn't have a brand name yet, so for convenience, I'll call it "LW." I don't want to type "lightweight polyester fabric" every time.

Now to the particulars. LW is certainly lighter than the standard Polyspan at 18 gms./sq. m., versus 30 gms. Eyeball analysis indicates it's the same material, only less of it and therefore thinner, hence the weight savings. However, the lighter weight appears to result from merely less material being laid down in manufacturing, resulting in a more porous material.

My use of LW started with the covering of a new Casano Stick wing. The LW is put on the framework exactly like tissue or Polyspan. The framework is covered in one coat of full strength nitrate wherever the fabric will touch wood. The LE, TE, dihedral breaks, and under camber ribs are given a second coat. The fabric is attached to the framework by bleeding thinner through the fabric, first at the corners, later along the perimeter, tugging gently as you go, trying to get the fabric as taut as possible, prior to heat-shrinking and nitrate doping. An overlap of 1/8th inch is recommended at the edges.

LW applies more easily around compound surfaces than polyspan, but care must be taken not to tear the fabric, which happens more easily. Unlike Polyspan, the "shiny" side is much less obvious, so care must be taken to keep this side on top. Sometimes you can't tell at all.

One issue arose almost immediately. My usual practice with Polyspan is to give the fabric a hearty heat-shrinking before the nitrate doping. I did this to the LW and the larger of the pores opened up even more. Yikes! This bothered me, but I moved on ahead with the nitrate doping, using my usual techniques. The LW and four coats of vigorously brushed nitrate added about seven grams to the bare, sanded framework, or 3.5 gms./sq. ft. of surface area, if I'm allowed to use our traditional but illegitimate standard unit. As is my practice with Polyspan, I sanded the fabric with 1500 W/D paper between coats, after allowing each coat to dry thoroughly.

After the customary finishing touches, I was done. I added my AMA #'s and a hardy blast of Design Master floral spray to the outer panels, which adhered nicely. This coloring and AMA #'s added another gram.

The wing looked and handled great, not bad for a first attempt with a new covering material, I thought. However, the greater porosity of the LW required the use of four coats of nitrate versus

my usual three. At the time, this seemed like a lot of nitrate for the job and it still left more open pores than I liked, but it wasn't that widespread. Still, I was pleased with the LW and proceeded with other projects.

Sandy Downs, my OFB and aerodynamic guru on speed dial, and I talked about the project and he reassured me, saying that as long as the pores aren't too pervasive, they hide happily beneath the boundary layer at our air speeds. He also suggested I use his technique of silk doping to better seal the fabric next time. (I've always been happy to let sharp pencils like Sandy do my math for me. The right tool for the right job.)

My second effort involved the re-covering of the wing of a Burdov Coupe I acquired last year on the secondary market. (This means "used" to the verbally challenged.) I'm happy to report Sandy's sealing suggestion worked. My mix of nitrate and thinner was thicker than my usual 50/50, something in the 60/40 range. Also, I applied the nitrate with a wide and heavily loaded brush across the top of the fabric with the brush at a very shallow angle to the fabric, parallel to the chord, with only one or two, tidy-up, over-strokes, and all in the same direction. I let it dry thoroughly. I made no effort to work the nitrate into the fabric. Rather, I wanted it all to sit on top. I followed this first coat with two more of my usual 50/50 blend, using the same brushing technique, sanding between coats with 1500 W/D paper. The wing sealed nicely with only a few pores here and there, much less than before.

I made other changes in my technique for the Burdov wing. I waited to heat-shrink the fabric until after the first coat of nitrate had dried thoroughly. Only then did I apply the full benefit of a heat gun to the fabric. The pores didn't open up any further and I'm guessing the first coat of nitrate stuck the fibers to each other in some way.

This second effort brought much better weight and sealing results. The altered procedures saved one coat of nitrate and sealed much better in the bargain. Not counting the later color spraying and AMA #'s, the LW and three coats of nitrate added about 3.0 gms./sq. ft. of surface area. It was time to verify the weight numbers and sealing results with another wing.

My next use of LW involved the re-covering of my Korda Wake wing from its original covering of Ultracote Lite. The wing was recovered with the altered techniques and the weight results of 3.0 gms./sq. ft. of surface area was repeated and the fabric was again sealed to my satisfaction. (Interestingly, I'd always felt I was hauling around some extra weight because of the film, but the finished weight of the wing was within one gram for both coverings.) Live and learn.

Looks are important and LW has a pleasant, pearly appearance, more reminiscent of white Jap tissue than Polyspan. But you'd better like white because that's the only color you get. Happily, LW is easily colored with floral spray and other methods would probably work just as well.

The price of LW is right. I bought a one meter by four meter roll for only twenty-five dollars, American, including postage. That's about fifty cents per square foot. It took around two weeks for the package to arrive from England. I saved a little by not specifying a rolled and tubed shipment. It arrived just fine folded in a plain, large envelope.

Mike accepts cash, as in folding money. Twas a blessed convenience. (Ah, the mighty, American dollar. As much as this country is criticized internationally, everybodyc is just fine and dandy with our currency. The politics of self-interest in the form of opportunistic lapses of logical argument. Just take the money and buy a new turban or freshly baked croissant, you hypocritical bastards.—DM)

One cautionary note. As the nitrate cures, you need to monitor the structures for warps. Don't let the use of a synthetic fabric blind you do the tautening effects of the nitrate as it cures.

In this aspect, LW behaves like Jap tissue and silk. CF D-boxes are impervious to this, but open structures aren't. Happily, steam from a kettle makes quick work of the errant warp or two.

In summary, I recommend Woodhouse's new LW. It has many virtues and I think free flihters will find it useful. Once you get the hang of it, installation is idiot-proof, certainly no more difficult than the other coverings. Not much of the torsional strength of the standard Polyspan is lost. It doesn't offer as much as Jap tissue, but much more than that provided by Mylar and the other films. I'll let someone else put a meter to it and generate a hard number because it smells like math. I'd rather glue sticks together. LW handles moisture well and rain beads nicely on top of it. I've tossed the various wings around the yard with some vigor and LW can take a lick. It's a matter of personal choice, but I accept the (3) gm./sq. ft. of surface area weight penalty as a welcome trade for all the benefits.

I'll be using it extensively on the next several projects and I'll pass along whatever hints and tips come my way. As it stands now, I'll be using it on all wings, Coupe and Moffett-sized or bigger. It's probably too heavy for P-30 wings or smaller. I'll continue to use 1/4 mil Mylar for stab and fins. LW's usefulness in covering rubber-powered fuselages is a question I'll be delving into soon. It'll certainly save weight over the use of Polyspan, but I've a reservation about the material's having sufficient resistance to twisting under the load of a fully wound motor. The Casano fuselage will be a good test. Stay tuned for more.

I'll limit my recommendation of LW to rubber-powered models and towline gliders, I won't give an opinion about LW's use for gas-powered models because I don't know squat about gas jobs.

WHAT HAPPENED TO OUR DOPE?

I bet that got your attention. I've been using more and more of the new synthetic covering materials the last decade and less and less Jap tissue. As a result, my use of nitrate dope has declined, being limited now to the occasional Flying Aces project.

I've noticed less warping of the structures in these models recently and I've credited myself with being a better builder, using better materials and techniques, and therefore being rewarded with lighter and more warp-resistant structures and better flying models. This stance may've been more ego-gratifying than accurate.

In an article in the fall issue of the "CAAMA Newsletter", a discussion of the current formulation of nitrate dope ensues. Apparently, nitrate ain't necessarily nitrate anymore. Sadly, the old jar's contents now vary considerably by manufacturer. Due to pressure from the EPA and to increase shelf life, SIG and others have shifted to more and more urethane content in their nitrate and butyrate dopes. Bottomline: urethane content extends shelf life and clarity, but provides less shrinkage.

Some experts say Randolph and Brodac are currently the only brands offering pure, unaltered contents in their nitrate and butyrate lines. Another source recommended the Certified Nitrate brand, but it darkens and thickens to molasses very quickly.

Where does this leave us? FAC types probably welcome the change because their relatively frailer structures can suffer from too much tautening. Others, who use Polyspan, silk, and Jap tissue on larger, more robust structures, will find this trend to be worrisome. Anybody out with more information?

THINKING OF GEORGE

Had I had better math skills as a young lad I probably would've been an engineer or scientist of some sort. Not that the left side of my brain is mush or anything. I processed through all the advanced science and math classes in high school. Plus, I did have a two year's dose of graduate level statistics, but it was a hard pull all the way. And the minute I stopped using statistics professionally, it disappeared faster than a welfare check in a crack house. Still, I try to keep up with the latest techno stuff.

While perusing a recent issue of "Popular Science", I noticed an article on some of the new aerodynamic work by the sharp pencils at Mercedes. Going far outside the box, the Stuttgart boys used a fresh source of inspiration for their latest concept study of future, high-efficiency, four-passenger, small cars. Looking to push the envelope on lowering drag, they looked to the sea for models of drag coefficient(Cd) minimization. Ergo, the humble tropical boxfish, aka *Ostracion Cubicus*, came to serve as the model for the aquatic-inspired Bionic concept car.

The form of the odd-looking fish produced an odd-looking car. However, the four-seat Bionic showed a Cd of a mere 0.19, as compared with the Honda Insight's 0.25 and the Toyota Prius's 0.26. By way of comparison, the ideal water drop's Cd is 0.04 and the abysmal Hummer H2's is 0.57.

It made me think of our OFB George Perryman. Many people reflect on George being inspired by birds for his unique model designs. Those who knew him well will recall he was just as apt to mention fish. He was particularly fond of the high-speeders like sharks, dolphins, barracudas, tuna, and the like. He often said to me, "you never saw a fish without a sub-rudder" and you never saw one of his models without one, either. His scimitar planforms owed as much to shark fins as they did hawk wings. With his fiendish distaste for weight and drag, everything had a strict purpose and a minimal structure to do it, no madness to his methods.

We can all thank the Powers That Be George never saw the tropical boxfish. It would've made one bizarre-looking model airplane, even by his standards. Imagine his LFPBPLTOL Bostonian with an extra, big dose of ugly. Ouch.

(Need I mention the LFPBPLTOL Bostonian was a multi-year NATS, KOI, and PS Indoor winner? Some knuckle-draggers laughed at George's models; he laughed all the way to the awards podium.)

LOOKING FOR GOOD HOMES

Fellow Thumb John Federico has gave me a big roll of scale and OT plans that need a good home. They're too large and expensive to duplicate for the annual plan giveaway, so I'm going to list them and the first one with an e-mail claim or phone call gets it.

Don't be greedy and ask for all of them. I'm imposing a limit of three per customer. Current paid-up Thumbs will get dibs, but I won't wait on you forever. After that, any like-minded soul out there in the free flight ether can have them. We'll see if this clears them out. I feel good about three because that's how many I kept for myself. Mention if you're need it for a project or if you're completing a set. Confess if you're just stockpiling booty. Everything looks to be freshly re-printed on quality stock or faux-vellum.

Gimme conflicts will be resolved by me. I'm going to be just, fair, and hard. You are hereby advised.

1. 3-fer. Fly Rod, 1/2A Nosgas/ reduced Miss America, 1960, MAN. 44" wgs. Scientific, 1935/ Indoor Curtiss Robin, no source or lineage, looks OT, 31" wgs.
2. G. B. 2 Flying Boat, 1940(?), Aeromodeller.
3. Turbo-Porter, A. A. Lidberg, w/article, 40" wgs.
4. Skeeter-30, sport RC electric, 38" wgs.
5. Spad XIII, Construct-A-Plane, 1934, 24" wgs.
6. Skokie, Easy Built, Jimmy Allen, 24" wgs.
7. AMA Maxi Jr., sport rubber, 20" wgs.
8. Patriot Racer, Bostonian, Flying Models, 16" wgs.
9. TA-152H, Model Builder, 23 1/2" wgs.
10. Bede BD-4, Model Aviation, 18 1/2" wgs.
11. Oriole Jr., Fresno, 27 1/2" wgs.
12. Hi-Climber, Earl Stahl, Oldtimer Models, 30" wgs.
13. 2-yr. Hep Cat, vintage rubber, Aeromodeller, 30: wasp./Big Fry, vintage(?) CL, Aeromodeller, 42" wasp.
14. Flying Aces Moth, Peck, 24" wasp.
15. Monocoupe, no source, 1934, 13 1/2 wasp.
16. Micro-E, sport electric, Hi-Line, 16" wasp. 3 sets.
17. New Gollywock, Midwest, 32" wasp.
18. Douglas Skyraider, Mooney-Model Builder, w/ article, 27" wasp.
19. Curtiss Robin, Comet, 1932, not the DS one, 17 1/2" wasp.
20. Fiat G-50, 27" wasp.
21. Curtiss O-52, Model Builder, 30" wasp.
22. Curtiss XF13C-1, Scientific, 1935, 20" wasp.
23. Senior Dipper, Comet, 24" wasp.
24. Mr. Mulligan, Scientific, 1935, 20" wasp.
25. Sky Raider, Easy Built, Jimmy Allen, 26" wasp.

BACK HOME IN INDIANA, AGAIN

The dates for the 2006 NATS and SAM Champs are out. Mark your calendars on July 31 to August 4 and September 11 to 15, respectively. I'll have plenty of opportunities to cajole you about attending in the next few issues, so I'll just leave it at this for the moment. More later.

The SAM Champs will showcase the designs of Earl Stahl in several ways. The non-Hawker Hurricane is the featured rubber-powered design and the big Fokker D-VIII, the gas-powered one. They'll have a special event for his rubber-powered, scale designs. All should be well-populated. If you're looking for an excuse to start or finish a Stahl project, this could be it.

The Hurricane and D-VIII are interesting choices, being unique at their inception. The Hurricane was/is a decent performer and a low-winger, a rare combo then and now and eligible for Commercial Rubber, although you'll need a series of boomers to compete with the likes of the Wren, Convertable, Double Feature, and Korda Open Road. Small Rubber Cabin? Forget about it!

The D-VIII is huge, spanning several feet. Lightly constructed and designed to fly, it enjoys much the same reputation as the Lanzo Puss Moth, as in just barely legal, although I've never heard of it being actually outlawed like the Puss Moth. It will be flown in a variety of gas and electric-powered events. Look for the details in the latest "SAM Speaks."

I imagine the usual cottage industries will gin up in short order and kits of one sort or the other will be offered before to long. I remember Wayne's Hurricane being a good flyer and looker. I've never seen the big D-VIII fly and know it only by it's solid reputation.

TOO MUCH OR NOT ENOUGH

Bob Thoren and I shared a series of e-mails on this and that and within this context he asked me a question that proved to be intriguing. Bob asked the simple question: "why the Thumbs don't go to more regional contests?" Well, why don't we?

Our attendance at the USIC, USOC, and SAM Champs certainly needs no elaboration. We go in force and do as much damage as we can. We certainly keep the dust up locally with our monthly contest schedule, both indoor and outdoor. Obviously, we don't lack competitive vigor.

After much pondering, I concluded we've two good excuses, or reasons if you prefer. First, we fly a lot locally amongst ourselves and that surely takes a lot of the year out. I imagine others in our region don't have as many local opportunities.

Another reason may be geographic. For most of us, Johnson City is three or four hours away. The only other indoor venues of category III or IV consequence are in the southern end of Florida, a much longer haul. Locally, we provide plenty of category I and II action, September thru May. Even more indoor action is in the works with our use of St. Lukes meeting site. On the outdoor front, an equivalent logic may prevail. Muncie is a nine(with the Dohrman afterburner) or ten hours haul for most of us. The only other comparable field, Palm Bay, is no closer. However, Pensacola is significantly closer at five or six hours and we do attend this one in very modest numbers most years.

We can't blame it on any inclinations our OFB George imparted to us. He went everywhere, all the time. As a matter of fact, he actually recruited a crew to go with him. He wasn't bashful about asking for helpers and working them pretty hard. (Etu, Linwood?)

Anyway, this is my story and I'm sticking with it. I may not have explained much, but we've a quick and dirty response to this uncomfortable query.

SOME BAD NEWS FROM AFAR

I just received the last issue of the Strat-O-Bats newsletter. The last issue? Yes, they've disbanded and will turn in their club charter shortly. This once large and active club has been the big free flight wheel in the Seattle area for decades, but has been in steady decline since the early 1990's. It had gotten to the point where the last few members decided to call it a day.

Club editor and pen pal, Chris Weinrich, held forth on his theory as to why the club met it's end. After going through the usual theories, he posited the lack of monthly meetings at a regular meeting site. His view goes along with my theory that if you start acting like a vibrant club, pretty soon you're not going to be one. I'm also a rabid believer in monthly meetings and in the good they can do. Club comradery and morale begins with members doing things together and that requires the physical gathering of members on a regular basis. If all you're doing is scheduling a few major contests a year, you won't get anyway.

Where do the Thumbs stand in this regard? Pretty darn good, I'd say. You want to go to a meeting? Fine. Mentor youth groups? Fine. Senior groups? Fine. Fly outdoors? Fine. Fly indoors? Fine. Write articles and take pictures? Fine. Fun fly? Fine. Compete locally,

nationally, or internationally? Fine. Sit in a lounge chair and pontificate all day? Fine. Lead, follow, or get out of the way? Fine.

I rest my case. You can call me arrogant about this, but you can't call me wrong.

GOOD NEWS FROM AFAR

The NFFS has announced a new special event, namely E-36. The new class is presented as a entry into electric free flight competition. Let me say my wont isn't to applaud any new event because it's purpose isn't usually to promote a new technology, increase participation in a broad class of models, or any other big picture rationale. Typically, it's merely to legitimize something a local club is doing on a national basis, or because it's "fun", "good for juniors", or whatever. I'm generally underwhelmed.

E-36 comes along at a good time. Electric free flight needs an entry event and probably soon. Currently, there isn't one. All of current electric classes, FIQ, A Power, and B Power, are esoteric and exquisite technical exercises. How many out there are willing and able to jump into any of this trio with both feet and a big, fat wallet? I dare say, not many. Electric power in model aviation has a busy present and an even more brilliant future, but so far, it hasn't caught on with the free flight masses. Additionally, every month more cool electric stuff hits the market. I know most of it is RC, but put on your creative, thinking caps for once and walk down this vibrant aisle of goodies. Wouldn't it be cool to use some of this stuff in a free flight model?

This E-36 concept is tempting. It's outlined on the NFFS home page under "latest web postings", so click thusly. I'll leave the details to your timely perusal, but here's the basics: 36 inch wingspan limit, no area limits, maximum of (4) 150 mah Nicad or metal hydride cells, 25 second motor run, 150 gram minimum weight including batteries, brushed/can motors only, and folding props and gearing OK. (Basically, you're looking at a Mini-Pearl or equivalent, weighing 5.3 ounces.) Flight rules don't follow current gas power practice, such that, you fly three(3), 120 second maxes, followed by flyoffs rounds with a five second reduction in the motor run, ultimately bottoming out at 5 seconds.

I see nothing glaringly wrong with the concept at this juncture and neither do my three electric gurus, Graham, Frank, and Fritz. And you certainly won't be flying it all day; you should be done by lunch. On the face of it, it's friendly to our prevalent small fields. You'd be buying stuff at the bottom end of the market and building an all or mostly balsa model. Motors, gearboxes, props, batteries, chargers are numerous and relatively cheap. Even the digital timer/speed control/DT function is off the rack now. Go to <eft-inc.com/models/ff/smoothie> and see an example of what's out there. Fritz even sells something that'll work for this purpose, I think. These digital timers aren't that expensive and are available and ready to go.

No, these won't be dirt cheap models, but neither was your chase bike, RV, Walston unit, binoculars, and all the rest of your stuff. So please, let's not hear any grousing about how unfair everything is because you have to go out and buy something. Remember when the Euro-trash CO2 were complaining about how having ice on the field was an unfair competitive advantage for the well-heeled teams? E pluribus Unum, y'all!

TTOMA can speak with some authority on the matter of a beginner's electric event. Several years ago, many of our merry band joyfully built and flew a bevy of small electric models of a class we called the E-30. We went ultra simple with the rules: 30 inch box rule, maximum of (3) 50 mah Nicads, and P-30 flight rules. We flew it with enthusiasm for a few years, but we

eventually moved onto other things. The core of that throng started flying CO2 in happy coincidence with the introduction of better CO2 motors, design concepts, and charging techniques. This process is on-going; you can't spell CO2 at the NATS without putting a couple of Thumbs in there somewhere.

Wouldn't it be grand if we became a force in electric power, too? Our indigenous gurus are busy spec'ing a good motor, gearbox, and prop combo and just the right airframe to put it in. My ear is to the rail on this one. We'll keep you posted.

WHY WE KEEP SCORE

Here's the full results of our 2005 high point tourney. What can I say? The last three of us certainly could've done better and at least I had some good company at the bottom of the barrel. My shameful trio was beaten by two little girls and a guy on chemo. It won't happen again.

Gary Baughman	43	Frank Hodson	5
Brook Dixon, Sr.	39	Jim Martin	5
Jim Altenbern	35	Graham Selick	5
Dohrman Crawford	29	Clarence Purdy	4
John Barker	28	Liz Brown	4
Richard Schneider	18	Kayla Brown	3
Karl Hube	17	Easy Dave	2
Bill Gowen	15	David Mills	2
Don Peacock	11	Barry Sholder	1
David Barfield	9		
Ken Grubbs	8		
Al Pardue	7		

WHEN PIGS FLY

I hope Reverend Tim isn't leaving his flock unattended. He certainly is providing enough outre material for these and other pages. Check out the pink, porcine prepostorosity that follows. No idle hands in his workshop. Old Scratch doesn't stand a chance around there.

For the record, he took the guts out of a small RC electric and got jiggy with some insulation foam. He has it flying alright as a free flight and now plans to re-install the rudder function in the near future.

I forwarded it to Larry Kruse for his column in "Flying Models" and he jumped at it. You'll see it there soon. I can't wait to see it fly. There'll be chuckles aplenty at Johnson City, but can you imagine the vein-popping hysterics of the no-fun-Luddites when it fouls their precious air. Frankly, a few of them could use the cardio. And more familiarity with natural fibers both in their diet and wardrobe. Ouch!

NEXT ISSUE

Look for something in late April. We should have the story of the Southeast Model Show. We'll provide the necessary supplemental nagging on renewing your various memberships. We'll have a few contest reports. Hopefully, everybody will be healed up by then and I'll bring that cheerful news.

As is my wont, I continue to beseech the multitude for plans, photos, and articles. Don't make me work too hard. I'm no A-type, believe me!

Ciao, y'all!

The Thermal Thumbers of Metro Atlanta, 20 February 2006, Meeting Minutes

Vice President, David Barfield, called the meeting to order. Sixteen members were present. The last meeting minutes as published in the new electronic newsletter were accepted by the members present.

The treasure's report was read by Don Brown and accepted by the members present. For the period between 12 November 2005 and 20 February 2006, the deposits were \$872.00 and the expenses were \$516.23. Thirty one members have paid dues. The red X will be applied to the delinquents.

It should be noted that this was the first meeting of TTOMA in the new gymnasium at St. Luke's Presbyterian Church in Dunwoody. The meetings have been scheduled for every third Monday of the months February through November. This facility is excellent.

Old Business

David Mills said that 10 copies of the Thumb Print per edition were sent at a cost of \$15.00. The remaining Thumb Print copies were sent to members by email at a cost savings of a hundred dollars per edition. The copy and postage costs have been eliminated from 90 per cent of the Thumb Print distribution.

Dohrman Crawford summed up the success of the annual banquet held on 28 January 2006 at the Crowne Plaza Hotel. The banquet was well attended. There was good conversation and good food. The speaker, an aviation staff member from the Fernbank Museum, gave an interesting presentation of the current and available activities at the Fernbank Science Center. The evening was enjoyed by all.

New Business

Dohrman Crawford mentioned that there would be two contests, one in April and one in May, held at the church gymnasium.

Don Brown has renewed the North Georgia Sod Farm usage agreement for 2006.

Richard Schneider, the assistant manager for the contest team going to Sweden for the Control Line and Radio Control World Championships, gave a brief presentation

The meeting was adjourned.

Respectfully submitted, Geoff Gros Guth, Secretary

PEACH STATE INDOOR CHAMPIONSHIPS

May 13, 2006
North Cobb High School
Kennesaw, GA

The Thermal Thumbers of Metro Atlanta are hosting our fifteenth annual state indoor championships. We invite club members, family, and friends to come and join the fun. The public is invited, but only AMA members can fly, so bring your AMA card. However, kids can fly for free because we'll provide a complimentary AMA membership. Bring your TSA and SO models.

The contest is sanctioned by the AMA and all events, except as noted, will be flown per the AMA rule book as class AAA and category II. Registration begins at 8:30 am. Flying begins at 9:00 am, continues throughout the day, and ends at 4:30 pm. Lightweight events will be segregated from the heavyweights. Mass launch events will be sudden death and no kanones.

AMA: Easy B

Ltd. Pennyplane(J, SO)
Mini Stick
IHLG(J,SO)
Catapult Glider(218/219)
Bostonian(J,SO)
F1L
F1D

FAC: Dime Scale

Peanut Scale
Rubber Scale
Embryo
No Cal/Profile
A-6

TTOMA: Chattahoochee Challenge

Science Olympiad
TSA
Gnat

Mass Launch: WW I Combat-10 am

Racer-11 am
WW II Combat-high noon
Civilian-1 pm
Hangar Rat-2:30 pm

Management: Contest Director-David Mills/P. O. Box 12306/Atlanta, GA 30355/ 404-509-4209/ davidmillsatl@comcast.net. Assistant CD-John Barker/ jambarker@juno.com

Fees and Awards: The basic fee will be seven dollars for the first event, three dollars for each additional event, and a sixteen dollar maximum. Kids fly for free. Test and fun fliers will be charged five dollars. Trophies will be given down the three places, but only to the winners of the mass launches. The CD will give a High Point, Junior High Point, Best Crash, and CD's Award. We'll have some merchandise and swag for the worthy.

How To Get There: Get to I-75 northwest of Atlanta, outside I-285. Exit at Wade Green Rd.(#273). Head south, proceed .4 miles, and turn right onto Jiles Rd. at Amoco. Go 1.9 miles on Jiles Rd. and take a right onto Hwy.293/Old Hwy. 41 at CVS Pharmacy and Kennesaw Elementary. Proceed 1.6 miles to North Cobb HS, on the right. Turn right into parking lot at Blue Spring Rd. intersection and traffic light. Follow signs to gym.



Diane Howell, Wynelle Pardue, and Susan Crawford. Always good see pretty women out on the town, boozing it up.

Gary, winner of the George Perryman Perpetual Award, hoists the big moose.

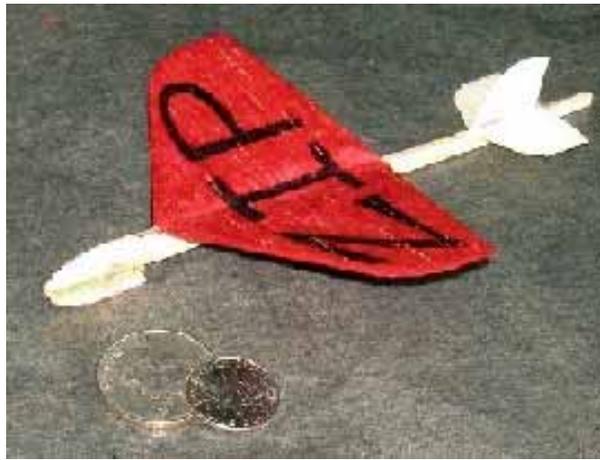


A large group of Thumbs and their better Two-thirds attended. Speaker was Debi Huffman from Fernbank. Good talk.

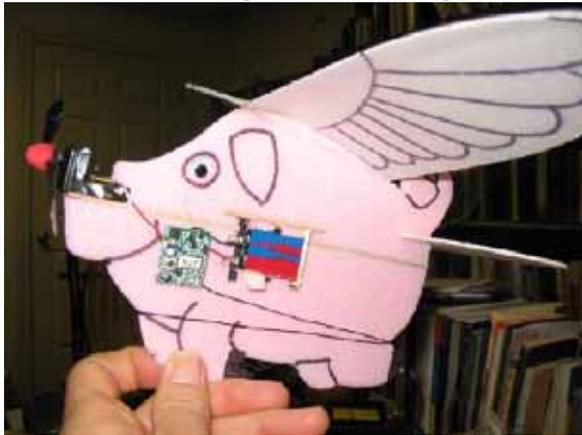




The banquet's swag. Say what you will about TTOMA, we don't short you on the mahogany. Spouses just love these things. (Frankly, basements are good for marriages.)



Dohrman's Gnat glider. Believe it or not, these things fly.



When pink pigs fly. The latest from Tim Lavender



Inaugural meeting at St. Lukes. John holds forth armed with a Bostonian



"Gary's ELM group."

MEMBERSHIP FORM: Thermal Thumbers of Metro Atlanta

NAME: _____
 ADDRESSES: _____
 CITY/STATE/ZIP: _____
 PHONE: _____
 E-MAIL: _____
 AMA #: _____
 OTHE FAMILY MEMBERS: _____

Membership: \$30.00 per year
 (Other family members: \$1.00)
 At same address
 Seniors/Juniors: \$2.00/year
 (age < 19 yrs)

Checks payable to TTOMA
 Mail to:
 Don Brown
 477 Safari Circle
 Stone Mountain, GA 30083



SAM MEMBERSHIP & RENEWAL APPLICATION

Subscriptions to SAM Speaks are not available without membership

Membership Rates
 1 yr. Residents of Canada and the U.S. - \$25.00
 1 yr. Foreign - US \$40.00 (Air Mail only)
 Renewal New Membership

Name _____
 Address _____
 City _____ State _____ Zip _____
 Telephone _____ SAM # _____
 Email _____

I agree to follow the rules of the Society of Antique Modelers and uphold the principles stated in the SAM Preamble.
 Age _____ My Interest: Rubber Models Gas Models

Note: Membership in the AMA is required to fly in SAM contests. Please put your SAM number on your check if renewing.
 Checks payable to: **Society of Antique Modelers.**
 Address: P.O. Box 860236, St. Augustine FL 32086

NFFS MEMBERSHIP AND RENEWAL APPLICATION

FREE PLAN OFFER!
 By checking this box, I acknowledge that I am now joining **NFFS** for the first time (or) my membership has lapsed for the past twelve months or more. With my new membership, I will receive a **\$10** Gift Certificate (one year renewal) or a **\$20** Certificate (two year renewal) that will be redeemable for plans from the **NFFS** Plans Service. **PLEASE NOTE:** Signups due on or before 8/31/05. Certificate must be redeemed by 12/31/05. Member dues include annual subscription to Free Flight, the NFFS Digest.



US Residents (age 19 and over)	2 years	\$48.00
	1 year	\$25.00
Juniors (US only, age 18 and under as of July 1 of the current year — supply proof of age)	2 years	\$18.00
	1 year	\$10.00
All Non-US Residents	2 years	\$56.00
	1 year	\$29.00
Life Memberships	US Residents	\$500.00
	Non-US Residents	\$550.00

Make checks payable (in U.S. dollars) to the National Free Flight Society. Mail this form and checks to: **NFFS Membership Office, 22 Pine St., Homosassa, Florida, 34446-4654 USA**

New member Renewal Address Change
 Current membership expiration date: Mo. _____ Yr. _____

NAME _____ AMA # _____
 ADDRESS _____
 CITY / STATE / ZIP _____
 TELEPHONE _____
 E-MAIL _____

Questions? E-mail Membership Office: catroper@tampabay.rr.com