The Silent Flyer

www.sjsf.org

Winter 2006 AMA Charter 3250

President's Message

John Jenks
SJSF President

We've wrapped up another flying year: outdoor, indoor, contests, building, and most important - camaraderie and fun. We may have had some personal ups and downs but all it takes is a trip to the field and a couple of hours on the sticks and all is well with the world.

We can kick back now and do a little planning and dreaming of a visit from old St. Nick After all, Christmas is around the corner so I hope you have sharpened you pencils and made a good list.
It's also a good time for checking your equipment, planes and accessories. Balance your batteries, inspect and pull on the wires and look for frayed and loose connections. Order the little connectors, check the Rx in that plane that just doesn't seem to fly right and look for wires next to metal pushrods.
Now is a good time to send your intermittent Rx and Tx radio back to the manufacturer for a thorough inspection and re-tuning. This way you'll have it back for Frosted Fingers or the next indoor. In most cases it only costs $25-$35 for a Tx re-tune. I just sent two Rx back to Hitec last week.

Have you checked your motor mounts lately? Horn and clevis connections? Take a week and rather than

(Prez Sez - Continued on page 11)

Happy Holidays!

Just a reminder, the flyin' doesn't have to stop just because you have to put on a jacket. The field is open year-round and you can catch some awesome thermals during the cooler months due to the increased air density. Just remember that you want to keep your LiPo batteries warm prior to use because they lose a lot of capacity when cold.

2007 Dues Is Due!

Still a bargain at $20 per year! $5 for age 16 and under.
See membership form at www.sjsf.org and remit payment to:

Bob Bunting
2209 Beverly Road
Cinnaminson, NJ 08077

Don't forget that AMA membership is also required! $58
You can renew online at www.modelaircraft.org

Upcoming Events

Jan. 17 SJSF Indoor Fun Fly
7 PM, Fellowship Baptist Church
Jan. 23 SJSF Club Meeting
7 PM, Evesham Community Center

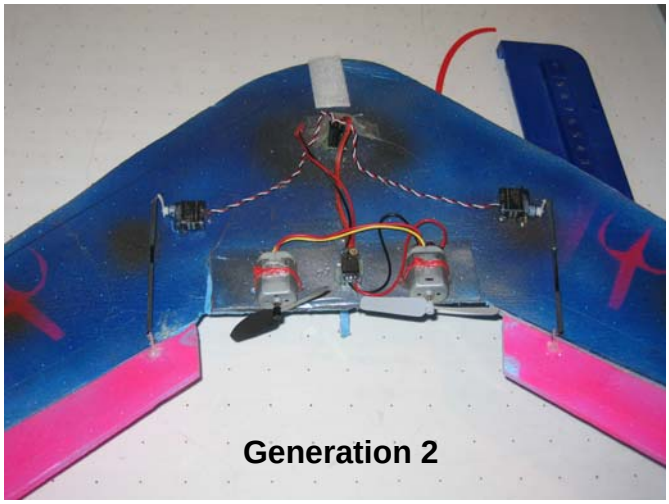
In Search of the Best Foam Wing

Leon Slezak

I love to design and build my own airplanes. When my son Joe took an interest in wings, I found plans on one of the RCGroups forums for a Dow blue foam wing powered by one Johnson 180 type motor and a GWS 3/2 prop. A single foam plank about 18“ across powered with a 2-cell 1.2ah LiPo. Construction was quick using hot glue for most of the build. It was however disappointing in the air - it was not really very aerodynamic and with no real airfoil which, coupled with the single Johnson, made it underpowered. It didn’t penetrate the wind well because it was so light. Don’t get me wrong - it flew OK, but it wasn't a screamer.

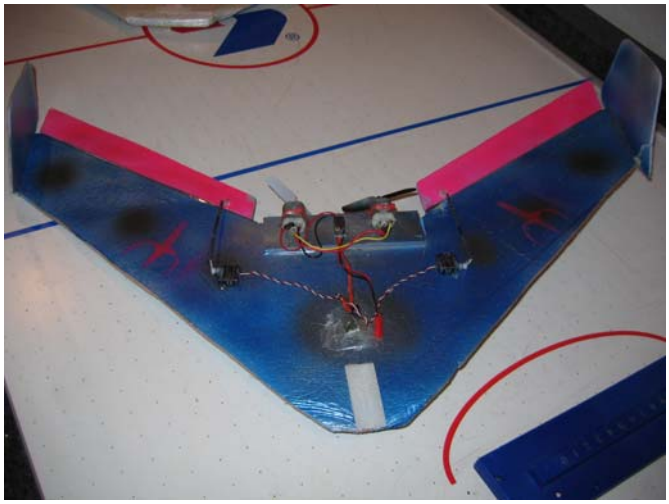
Time for a homebrew redesign – for my second wing I said "OK, add more power. Let's use two Johnson’s and slightly size up the wing to add room to put two motors side by side." The Evil Twin wing was born! It is a really decent size/power combination. I used a 2Ah 2-cell Lipo – don’t forget that the 180 cheapo motors draw 8 amps apiece, so a 16 amp draw from the 2 motors are right at 8C. The design needs a really heavy nose weight for stability so the 2Ah pack works to solve the current draw and balance problem.

The twin has one of the most unique sounds when wound up. The beat of the two Johnson motors at 25,000 RPM are a real sweet sound on a high speed fly-by. The wing flies well and is much faster than its single-motored brother. The added weight allows it to penetrate the wind. Run times are short due to the high current draw, but this wing is a blast to fly!



Generation 2

It has eventually become less stiff than it was when built and definitely had developed a flutter problem on high speed runs. Not a big deal. Solved the problem with a couple of bamboo shish-kabob skewers (in packs of 100 from the dollar store!) hot glued across the bottom of the wing. The blue foam really does drop in stiffness after a couple of flexes.



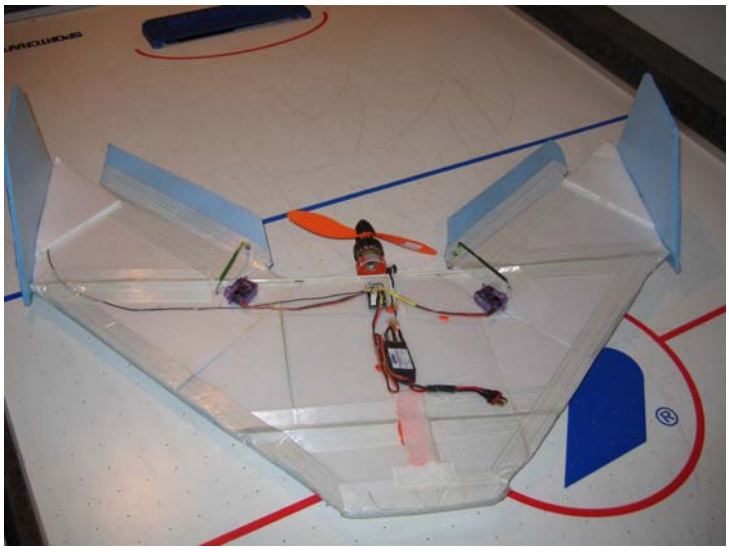
This leads me to the 3rd generation of wings. Joey wanted faster and faster – this means bigger motors. With the advent of the CD-ROM brushless motor putting out almost 21 oz of thrust, it was a natural progression to use a BP21 type motor with a 7x6 prop and a brushless controller for the 3rd wing. To solve the

(Best Foam Wing - Continued on page 3)

(Best Foam Wing - Continued from page 2)

flex problem I started with bonding a layer of blue core with a layer of white depron foam (lunch trays from work). The two layers are cut to shape and then bonded with gorilla glue. A flat board is laid on top to compress the 2 sheets of foam during curing.

The 2-layer foam is a little heavier but much less prone to high speed flutter and is far more rigid. The 3rd gen wing also uses a fiberglass rod across the top to add further rigidity. These can be purchased from the kite stores – much cheaper than carbon rods but a little heavier. I also changed the wing's shape. I added area to both the base wing and the side stabilizers. I also swept back the wing more to add stability. Bob Bunting had mentioned to me that adding more sweep-back angle adds stability like dihedral does. He is right - this wing is much more stable than the twin ever was. It tracks quite well, penetrates the wind, and it's straight-up vertical performance is really great. Even better is that its total airframe costs are less than $5. Considering that my son loves to do full contact combat, this is close to the perfect wing!



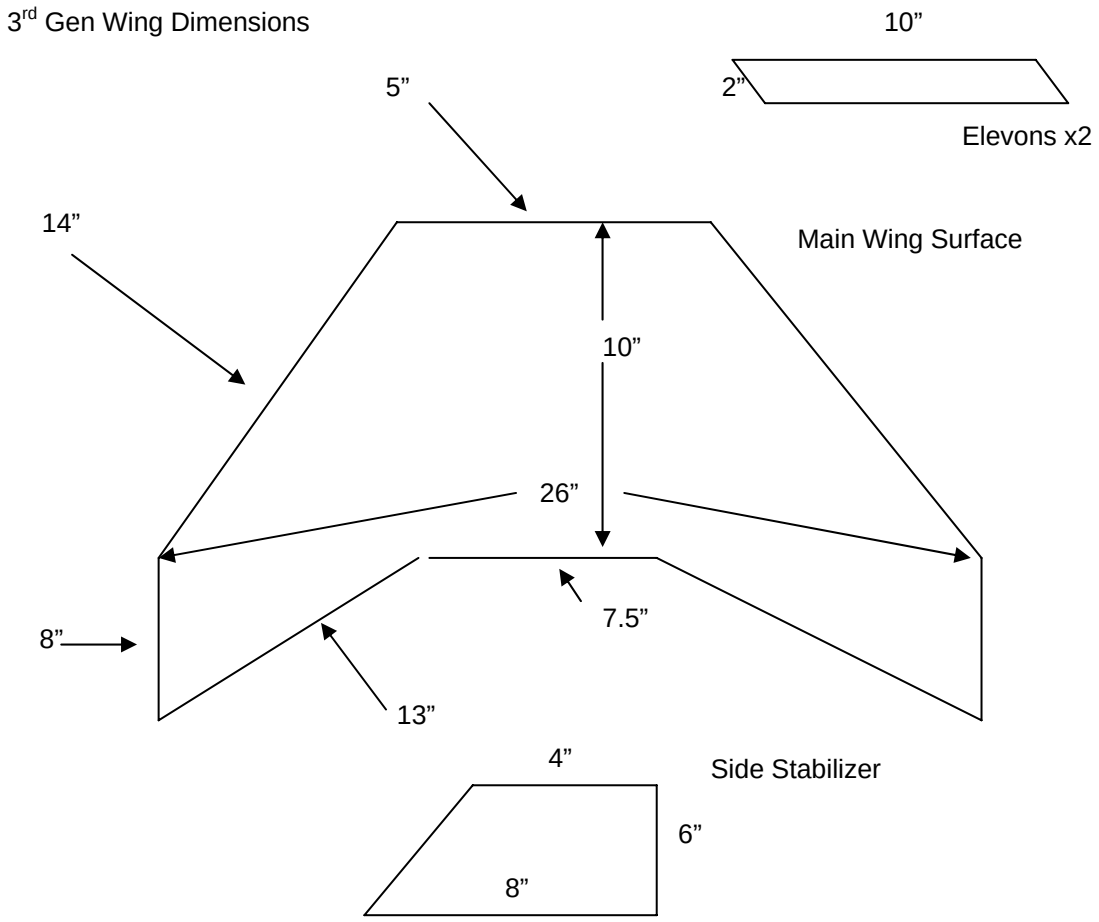
Generation 3

Construction can be done in a couple of nights and the only critical items are getting the thrust line centered and the balance right. It requires that the battery be placed right on the front lip of the wing. A ½" square basswood stick is used across the bottom of the wing to mount the motor and as a landing skid. It also doubles as a stiffener and a hand-launch handle. As can be seen from that attached photos nothing is really hard to fabricate or very costly. The control rods are made IFO-style with carbon fiber rods and heat shrink. Hinges are packing tape. Elevon surfaces are beveled at the LE to avoid binding. Throws are about 0.75" to 1" up/down for some wild performance, 0.5" for mild flying. Servos are mounted with a glob of hot glue to the foam. We use the 3-cell 2Ah LiPo from Common Sense RC as the power and have had really good luck with these cells. Batteries are attached with Velcro. Radio and speed controller are

(Best Foam Wing - Continued on page 4)

(Best Foam Wing - Continued from page 3)

also just hot glued down to the sheet as well. I found that we needed to use the lower temperature hot glue and try to use it sparingly since it is not light. Use packing tape on the leading edges to help with



flex/crash resistance. The weight of the all-up wing is about 13-15 ounces. Nothing is really critical with the dimensions. I've built 4 versions of this design with slight shape differences and very little changes in flight performance. No airfoil here – just pure thrust. I have attached the rough dimensions if you decide you want to build a copy. You can use Depron lunch trays if you don't mind the smell of a hoagie when you fly your wing!

Future wings:

The current position of the battery is not very aerodynamic but is necessary for balance. I'm currently working on a 4th generation of the wing. One key change is moving the motor forward to about mid-ship and designing a more aerodynamic shape to enclose the battery and move it back off the leading edge to increase speed. I'm also convinced that the side stabilizers limit performance so maybe I will change to a single inboard fin that shields the prop - this might work more efficiently. Anyway, that's my design that is on the drawing board and is a work in progress. See you at the field! *Leon*

New Stuff

JR DS285 High Speed Digital Micro Servo

The new JR DS285 high-speed digital servo is perfect for micro heli users and precision electric foam airplane pilots.

Key Features:

Ultra-precise centering and movements
30% Faster than the previous version
Weighs only 8.5 grams

Specifications:

Type: Digital Hi-Speed Sub-Micro
Torque: 16.9 oz-in
Speed: .18 sec/60 degrees @ 4.8v, .14 sec/60 degrees @ 6.0v
Dimensions (WxLxH): 0.45"x0.87"x0.85"
Weight: .32 oz
Motor Type: 3-pole ferrite
Gears: Nylon
Application: Electric aerobatic planes, sailplanes, micro-helis and other special applications.

JR DS285

Spektrum DX7 Radio System

[Ed. note: this is the first full-range Spektrum radio. The DX6 radio was only rated to a maximum range of 3000-3700 feet]

Key Features:

- 20-Model memory
- Airplane and Heli software
- Switch assignment
- P-mixes
- Includes 4 powerful DS821 digital servos with high-tech resin gears
- 3-axis dual rate & expo
- 3-position flap (Airplane)
- 5-point throttle curve (Heli)
- 3 flight modes plus hold (Heli)
- Gyro programming (Heli)
- CCPM, 2-servo 90°, 3-servo 90°, & 3-servo 120°

Overview:
With the DX7 you'll be able to fly anything from micro electric helis, to big gas-powered IMAC planes without regard to frequencies and free from fear of interference. Calling this kind of thing "revolutionary" just doesn't cut it. It is nothing less than a quantum leap in RC technology that will change how you fly forever. Never again will the availability of a frequency pin dictate when you can take off. Never again will you have to ask, "What channel are you on?" Never again will your flying experience be interrupted by model-generated RF noise, interference from commercial broadcast towers, or anyone on another RC system.

Specs:

(New Stuff - Continued on page 6)

Spektrum DX7

Tool Talk

Roger

We all have a variety of tools that we use to build or repair our models. Some of them we use on a regular basis, others come in handy only infrequently. This article discusses some of my unusual tools or tools that turned out to be more handy than I expected.

Calipers

Calipers are used for precise distance measurement. For example, what is the diameter of a carbon fiber rod, or how thick is a piece of balsa wood?

Sure, the materials you buy probably have their dimensions stamped on them or have a sticker that identifies the dimensions, but that information frequently gets lost when we return the material to our storage area, and thin or small-diameter material is difficult to measure accurately with a ruler. Calipers will allow you to make measurements accurate to 1/100th of an inch. A dial caliper (pictured) costs about $25.

I use calipers all the time, mostly to measure carbon fiber rod, motor shaft, and pushrod wire diameter.

Pin Vise Tools

Pin Vise Tools use a pin vise type of grip to hold a variety of tools - drill bits, screwdriver tips, files, etc. The various bits, screwdriver heads, files, etc. are stored in the handle of the pin vise grip.

The ones shown below are displayed left-to-right in order of usefulness: drill, screwdriver, micro-file. The drill bits work great for very small holes - you won't find these small diameters for sale at Sears!

The screwdriver replaces a set of jewelers screwdrivers, it just reduces desktop clutter. The diamond-impregnated micro-files come in handy when you are trying to file something in a hard-to-reach area.

Roger

Dial Caliper

(New Stuff - Continued from page 5)

- # of Channels: 7
- Modulation: DSM2
- Band: 2.4 GHz
- Servos: DS821 Sport Digital Servos
- Receiver: AR7000
- Programming Features: Aircraft and Heli
- Model Memory: 20 Model Memory
- Transmitter (Tx) Battery Type: 1500mAh Ni-MH

F3 Building Clinic Video

$25 from Radio/Carbon Art

Learn to build planes the professional way! Finally, there's a detailed visual guide for assembling and preparing today's modern composite sailplane kits: the F3 Building Clinic DVD.

Build up your soaring skillset and avoid costly building mistakes. Soaring expert Paul Naton shows you how

(New Stuff - Continued on page 7)

(New Stuff - Continued from page 6)
to take the basic components of today's molded composite kits and build it into a high performance soaring machine.

Most of the kits you buy today have little or no instructions, and even though the basic building is done, there's a lot of building still to do to ensure your plane flies at peak performance in a safe and reliable manner. Paul teaches you all the pro tricks you will need to know to make this happen.

You learn how to put together all of the model's subsystems including: electrical wiring, battery packs, servo and radio installations, push rods, linkages, ballast, and other building details. The demonstration plane is a Trinity F3 model from SoaringUSA and the techniques taught can be applied to most composite and molded gliders from 1.5 meter spans and up.

Once you have learned the basic and advanced building techniques taught in this 2 hour DVD, you should be able to build any kit on the market with confidence.

FS One Flight Simulator

Now shipping! [Ed. note: with any of today's high-end flight simulators you need to check the System Requirements to ensure that your computer is powerful enough to run the simulator and has a compatible graphics/sound system]

With FS One you get more than photorealistic fields, gorgeous skies and realistic looking aircraft. You get incredibly advanced aerodynamic modeling that simulates every possible aspect of real-world flight.

Key Features:

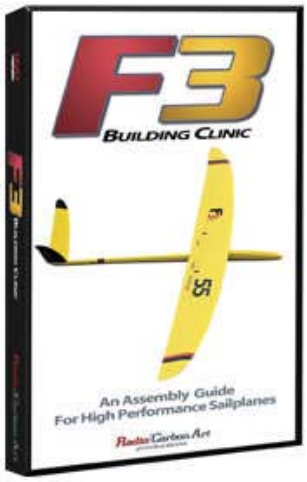
- Highly Accurate Flight Models and Aerodynamics
- Realistic Ground Handling
- Realistic Damage Modeling
- More Than 25 Different Flying Sites
- State-of-the-Art Graphics
- Extensive 3D Flying Field Viewing Options
- Flight Recorder

[Ed. note: the list of features is extensive, you can read more about them online at www.fsone.com, but I want to point out the sailplane features, many of which aren't available in any other simulator]

Sailplane Features:

• Hand launch

(Net Stuff - Continued on page 8)



(New Stuff - Continued from page 7)

• HiStart (bungee line)
• Winch
• Tow plane (tow up the sailplane)
• Variometer support
• Thermal soaring
• Slope soaring
• Dynamic soaring Training
• Flight training modules and tips by world-class RC pilots

Carbon Butterfly

$300 from Plantraco Hobbies

[Ed. note - the receiver has a spare channel in case you want to add an elevator. The airframe will be available for purchase separately in the future.]

We took our world famous Butterfly Livingroom Flyer and put the design through some creative design metamorphosis and the Carbon Butterfly emerged - ready to fly in the smallest rooms of you home!
Inagaddadavida baby!

You might have to see it to believe it - so check our videos to see the state of the art in Micro R/C technology from Plantraco!

Sporting a rugged yet elegant Carbon Fiber frame, the Carbon Butterfly is nearly indestructible. As flexible as fiberglass and strong as steel, the Carbon Butterfly can bounce back from almost anything you can throw it at.

Full Proportional radio control enables you to fly with precision in any room 12' X 16'. Just add 4-AA batteries to the combination transmitter/charger and you'll be ready for action anytime

Take the Butterfly with you ANYWHERE in it's own protective aluminum briefcase (included!) You can safely take your Carbon Butterfly with you to work, school, holidays, anywhere.

Order today and learn the fun of building and flying the smallest Micro R/C models.

Dremel Stylus

$70

- Patented nose tip control - On/Off at front of tool for one handed operation
- Variable speed 5,000 - 25,000 RPM for superior performance and control
- Pistol grip design for outstanding balance, performance and precision control
- Docking station - Holds the Stylus during projects while charging battery.
- Soft grip housing for

(New Stuff - Continued on page 11)

Carbon Butterfly

Dremel Stylus

A Newbie's Perspective

Marty Sievers

As a new member, I thought it might be a good idea to give the members my impressions of the club. Before I begin, let me introduce myself.

My name is Marty Sievers. I am 55 years old and spent most of my working life as a professional automotive mechanic and automotive technical trainer. I currently work as the manager of Technical Services for a company that sells automotive parts to the aftermarket.

My passions are my family and my hobbies. I have 2 main hobbies: I love to study WWI aviation history and have been researching it since 1969. Over the years I have been fortunate enough to have acquired a very large reference library. Of course my other main hobby is building and flying RC aircraft.

I belonged to a club many years ago called South Jersey Flyaways where I served in many capacities including: President, Vice President, Field Marshall and Safety Officer. I also served as one of the club instructors.

As time went on, the demands on my time sidelined me and I lost interest in the hobby, although I continued to build models (I'll bet this sounds familiar to many of you). For many years I did not belong to a club. However, the call still existed for me to be a club member again.

I happened to be searching the web one night and stumbled across the SJSF website. I noted with interest that the club was local and only allowed electric aircraft. Well, since I was headed in the direction of electric flight anyway, (the NEAT Fair 2003 did me in!) I decided to visit the SJSF field on a Sunday afternoon.

Much to my delight, I was greeted warmly by several pilots. I enjoyed a most pleasant afternoon chatting with several flyers about their aircraft and the equipment. I do confess, having come from flying glow for many years, I was still (and continue to be) somewhat confused and baffled by what I saw. Hopefully with some guidance and help from the members, I will be OK.

I have completed 2 electric-powered sport aircraft and am waiting for the opportunity to maiden them both. I am however, a scale enthusiast, and favor WWI German fighters.

I recently joined the ranks of the SJSF club and I must say, I am glad I did. I enjoy the meetings, indoor flying, and look forward to becoming more involved with the club as time progresses. I would like to say a heartfelt thanks to all the members who have welcomed me into the club.

BTW guys, my AMA number is 18072 -beat that!

All the Best, *Marty*

2007 SJSF Officers

President - John Jenks
Vice President - Marty Sievers
Treasurer - Bob Bunting
Secretary - Marti Bunting
Field Marshall - Luke Kociuba
Safety Officer - Chris Doukakis

Electric Pattern Plane

Dave Lockhart

"Prestige", from Wistmodel.com.pl (Poland)

Full composite molded fiberglass/balsa
~78" length
~75" wingspan
~1000 square inches
10 lbs flying weight
JR PCM 10X w/ 790 RX
Ail - 9411sa, Ele - 8417sa, Rud - 8411sa
RX lipos - Dual Thunder Power 2s1p480 through dual Tech Aero (www.tech-aero.net) voltage regulators
ESC - Castle Creations Phoenix 85HV

Motor(s) -
- Plane #1, Hacker A60-20S direct drive outrunner w/ APC 18x12PN
- Plane #2, Neu 1515-1.5Y w/ 6.7:1 BAM planetary reduction w/ APC 18x12.75PN

Lipos -
Thunder Power 10s4p 5300s for 9 minute PO7 preliminary sequence, 70-75 amps peak, ~2600 watts peak.

Thunder Power 10s4p 4600s for 7.5 minute FO7 finals sequence at about 78-83 amps peak, ~3000 watts peak. *Dave*

(New Stuff - Continued from page 8)

superior comfort and control

- 7.2V integrated lithium ion battery - Holds a charge 6 times longer than Ni-Cd
- Tool will hold a charge for up to 2 years
- No battery "memory effects" - Can be recharged at anytime without reducing the charge capacity

End

(Prez Sez - Continued from page 1)

actually making the repairs, just take inventory and make a list of all the little hardware items then stop by the hobby shop and get them all at once.

It's also time to take inventory of the kits and decide on what to build over the winter and what to take to Lebanon - or one of the many flea mar-

(Prez Sez - Continued on page 12)

Test Pilot Quiz

AOPA Pilot magazine

1. Why did the Lockheed SR71 rarely ever take off with full fuel tanks?

2. T/F The revered British Supermarine Spitfire Mk.II of WWII fame had a pressurized cockpit.

3. List the following in order of decreasing glide ratios; a. Albatross (the bird), b. Boeing 747, c. Cessna 172, d. Gossamer Albatross human powered airplane, e. modern high performance sailplane.

4. What military aircraft was nicknamed "the missile with a man in it:" and had an ejection seat that went out the bottom?

5. How fast can a horsefly fly?

6. T/F More pilots became aces in the P51 than any other plane in WWII.

7. What is the highest altitude ever reached by a propeller driven aircraft (within 4000 ft)?

8. Which aircraft manufacturer builds most single engine piston powered, single model aircraft? a. Cessna, b. Beechcraft (Ratheon), c. (New) Piper, d. Cirrus

Random Links

Expert article about trimming a 3D or Pattern plane:
http://www.mini-iac.com/Portals/57ad7180-c5e7-49f5-b282-c6475cdb7ee7/PGoldsmith%20on%20trimming.pdf

Mini-How To - Detailing Slofly's EPP Foamies With Decal Paper
http://www.rcgroups.com/forums/showthread.php?t=582939

East Coast Indoor Modelers
http://www.ecim.net

(Prez Sez - Continued from page 11)
kets that will be held in the Spring. It's all a matter of planning - don't put more than 5 things on your list to do.

We still have 4 indoor fun-flys in the first half of 2007, so don't leave them off your list. How tough is it to make sure one or two indoor models are ready to fly each month?

Field notes: We had a great end of the year Fun-Fly. The weather cooperated for a change and lots of people were flying. Al brought his helicopters and wowed us with loops and aerobatics. There were lots of speed ships and some easy flying slow stuff. And just when you think everything is going good, you get a brain lock. Chris D. and I were planning on flying formation with his Spitfire and my P51. We both launched together and his took off and flew just fine, but mine crashed on launch. It turns out I forgot that I was flying on HIS frequency. His Tx shot me down (which I probably deserved) but curiously my Tx didn't shoot him down. It turns out he was flying a new Castle Creations/Berg Micro stamp DSC receiver that rejected my Tx signal and had successfully locked on to his Tx. It says a lot about the quality of the new radio equipment. Other than that it was a great day at the field.

As I write this, it looks like the weather has finally caught up with the calendar and we have some real December winter conditions. Hope to see you in January at the indoor. Have a Merry Christmas and holiday season.

Turn opposite the yaw,
John

Quiz Answers

1. It had very poor low speed performance at high wing loading and if an engine failed shortly after takeoff at the higher loading it was nearly uncontrollable. (Nothing to do with leaking tanks.)

2. True. The Mk.VII was one of many models that was used as a high altitude interceptor.

3. e. 40:1, d. 23:1, a. 20:1, b. 15:1, c. 9:1

4. F-104 Starfighter

5. According to April Holliday who writes science material for USA Today a tabanid fly can reach 90 mph.

6. False. 305 pilots became aces in the Grumman F6F. The Hellcat was nicknamed the "Acemaker" with a 19:1 victory to loss ratio.

7. Aeroenviroment's Helios UAV had a wingspan of 247 feet and 14 solar powered motors and reached an altitude of 96,863 feet on August 13, 2001. It broke the record for jet and propeller powered airplanes.

8. d. Cirrus – 529 Cirrus 22 (Cessna builds the most single piston powered aircraft 172, 182, 206 - 605 as of last quarter).*End*