



PEAK CHARGE

Dedicated to the promotion of
electric propulsion in all types of aeromodeling

SEFSD Newsletter

October 2002

Volume XII Issue X

calendar

October Meeting
7:00 PM, 10-22, 2002

Automotive Museum
Balboa Park

Schedule of Events

ElectroGlide

Saturday,
October 26th, 9:00 AM
November 30th, 9:00 AM

F5B practice - call
Steve Neu

XMAS Party

Sunday, Dec. 1, 6 PM
Ruben's, Harbor Island
\$30 per person

Choice of Prime Rib, Herb
Chicken, Pacific Salmon, with
Potatoes, Rice, Veg,
Salad & Dessert.

We have the garden room over-
looking the Yacht Harbor and
San Diego Bay all to ourselves.



Silent Electric Flyers of San Diego *Club Information*

Web Site: <http://sefsd.org/>

2002 Officers:

President Bill Knoll
760-966-6884 stinkbugworks@hotmail.com
760-741-3570 billnoll@masson-assoc.com

Vice President Tom DeShon
258-1538 EWUTODE@am1.ericsson.se

Secretary TBD

Treasurer Mike Neale
858-674-1378 MNeale@energyne.com

Editor Bill Fee
760-967-7259 dwfee@cox.net

Safety Steve Neu
619-284-0816 SNEU@aol.com

Membership Dennis Collins
858-569-5015 dennis@pobox.com

Monthly Meeting

Held on the third Tuesday of each month (no meeting in December) at 7:00 PM. Meeting room is at the San Diego Automotive Museum, San Diego, CA.



Flying Site

Located one half mile east of Sea World on Sea World Drive.



Membership / Subscription:

\$25 per year for membership. \$15 for subscription only. \$10 for under 18 or additional family member. Contact Dennis Collins, 5150 Corte Playa Catalina, San Diego, CA 92124

Mission Statement

The objective of the Silent Electric Flyers of San Diego is to promote and further the technology of electric powered R/C aeromodeling: encourage competition in Electric Soaring, Pylon Racing, FAI-F5B/D, Scale, Old Timer, and Pattern Electric categories by hosting major industry-sponsored events and sanctioning "Fun-Fly" types of contests; provide forums for the exchange of technical information, instruction and experience; and participate in demonstrations of electric propulsion in area wide model aviation events.

PREZ SEZ



Bill Fee is our new editor. He has years of experience in produc-

ing a newsletter for a discriminating readership. I envision good things to come.

In order to produce a quality product, Bill will need your input. If you have a notion to write anything at all, or you have a cool photo to share, send it to him by e-mail or snail mail. Who knows, maybe you too can become a "journalist" or maybe even a "columnist."

Arrangements are being discussed for the club banquet, and preliminary plans are underway for the MWE2003.

Field improvements are being processed with the Planning Department for approval prior to submitting to the Coastal Commission for review. The City bureaucrats

requested a Coastal Commission permit before they would approve relocating the field. We may also have to prepare a Stormwater Management Plan if the City requires it.

Wayne is working on getting the permit for the MWE showing our field in the new location. If the MWE permit shows the field in the new location, I guess that means we can move it without all the other permits, right?

Front Cover

Top - F5 participants; USA team on back cover
Middle - Alps Flying
Bottom Left - F5B Team
Bottom Right - F5D Team

In this Corner

An Editorial by Bill Fee



Past editors Steve Belknap and Charle White contributed to **PEAK CHARGE** in a first-hand way because of their active participation in RC electric flight. At this point I am a bystander.

I have been interested in airplanes since the late twenties. My uncle was a WWI RCAF flier,

and became a famous bush pilot flying mining equipment into northern Canada, and returning with fish, fowl and furs (on pontoons in the summer, and skis in the winter). It has been said that he flew contraband liquor into the USA during prohibition.

I joined the RCAF in January, 1941. Although I soloed later that year, a ruptured appendix grounded me, and on my return to active duty I was re-assigned to Air Observer's School (navigation and gunnery), and subsequently to a North Atlantic squadron on convoy duty, navigating PB5A Cansos (built in Montreal, and named after the Straits of Canso between Nova Scotia and Cape Breton Island).

Before and after the war I built rubber powered free flight models (Gas--and later, RC--were financially out of my reach). Manitoba's long winter left lots of time for building, but only a short summer season for developing flying skills.

At an early age, my son David became dedicated to precision assembly and detailing of plastic models. He was always interested in things electric. First it was HO trains, then model cars, boats, small free flight aircraft, and finally RC. When he was seven years old, a neighbor brought over a Saracen slope glider kit (from Hobby Shack) which was fascinating, but too advanced.

In 1982 I bought a Wanderer six foot glider from Mark Smith's Models and David converted it to ".05 electric" with the help of Bob Sliff, "Hatch" xxxx, Chuck Hollinger and others at the Harbor Soaring Society. His first RC flight was at the controls of someone else's F3E (early F5B). The Wanderer wing broke several times from flight stresses (stalling). "Hatch" made him an aluminum joiner.

One day a notice on a hobby shop bulletin board caught my attention; a free flight model airplane contest at Taft. I asked the proprietor why anyone would travel so far to fly a model airplane. His answer got us involved in designing, building and flying "rubber" P30s and Wakefields for the next decade. David and his brother Daniel have both represented the USA in the Junior Free Flight World Championships flying F1B (Wakefield); sister Dorothy was the best American flyer on the Junior F1B team twice.

In 1996 David visited modeling friends in Germany, and his interest in electric model aviation was stimulated by what were then modern vertical-climb F5B models and speed 400 racers. He got really hooked when we attended SEFSD's Mid Winter electric contest several years ago (having read about it in the E Zone.)

At 80 years of age, I am still a dedicated (but inactive) free flight enthusiast. Hopefully, *you* will help me keep the readership informed about newsworthy RC electric events and developments. For the record, please step forward.

El Presidente's state of the organization address will appear every month; Tom DeShon will report on the monthly meetings and provide the monthly calendar and insight into things to come; occasionally we will have a finance report from Mike Neal; a little tarmac chit-chat will be included from time to time.

With your cooperation, most issues will include a thumb nail picture and a brief biography of a different member. Periodically, individual "portraits" will be taken at meetings to include (later) in a membership directory.



Minutes from the September Meeting

By Vice President Tom DeShon

Introduction

The September meeting was called to order on 9/24/02. There was the usual contingent of visitors/new members. In attendance for the first time was the SDSU AIAA "Build/Design/Fly" competition team. Everyone is welcome to join us every 4th Tuesday (except December) at future meetings. The next formal club meeting will be the 4th Tuesday in October, or 10/22/02 at 7:00PM in the upstairs mezzanine of the San Diego Auto Museum.

Old Biz

The club's video library has been stable for quite some time now. As always, donations are accepted and videos of more current topics/events would be greatly appreciated. Please see Urana Green with questions and suggestions.

The newsletter will now be compiled and distributed by Bill Fee. Bill is looking for club members to submit articles related to the hobby. Topics may include articles on construction, assembly review, flight review, or specific "how-to" topics. Please forward any text or graphic submissions to dwfee@cox.net.

New Biz

Club Competition / Events

The S400 Electroglide will take place Saturday, 9/28 at 9:30 AM. This event always occurs on the Saturday

following the monthly meeting. The general rules have changed recently. The motor and battery requirements have been expanded. In the past, battery packs were limited to 7 cells. That has increased to 8 cells. Also, the S400 motors had to be 6.0v or 7.2v versions.

Beginning this month, competitors may use S400 4.8v motors. All Junior pilots, 17 years old and under, are

able to fly any configuration of plane regardless of motor size or cell count. Future competitions are planned for 9:30 AM on 10/26, and 11/30. For information on this event, please contact Don Wimple.

Lastly, there was discussion about moving the meeting place from the Auto Museum back to the Aerospace Museum. Urana Green and Don Wimple are negotiating schedules and cost with the museum. As of the writing of these minutes, no formal decision had been made regarding the October meeting. If this situation should change prior to 10/22, notification will be mailed explaining the outcome.

Awards

One of the most difficult positions in this club is the publishing of the newsletter. Charlie White was presented with an award for his tireless efforts in publishing the newsletter. Replacing Charlie is the new editor, Bill Fee. We wish Bill luck and stamina.

Club Programs

The 2003 MWE is currently in the planning stages. The committee is looking for volunteers as usual.



Wayne Walker has volunteered to be Contest Director (CD) of the event. Anyone interested in volunteering should contact Wayne, Bill Knoll, Bill Everett, or Chuck Grimm. This year's format will likely change based on input from last year. Currently the formal events are not known, but suggestions are: Speed 400 Electroglide, Speed 400 Pylon, Sky Scooter Pylon, Sky Scooter "all up, last down", and a Limbo Combat contest.

Demos may include Helicopters, Aerobatics, Ducted Fans, and F5B and F5D. Suppliers will be on hand as usual. The cost is still TBD. An indoor flying event may or may not take place this year, as location has been a problem in the past.



Construction / Development

The club is currently in need of a trailer to store club equipment. The existing trailer is degrading and a replacement 6 X 8 enclosed trailer would be perfect. All of the F5-B timing equipment as well as the pylon and landing zone markers are all stored in this trailer. Donations would be preferable, but a low-priced trailer would also be considered.

Wayne Walker is attempting to get financial support from Hitec, the radio manufacturer. Each year, Hitec donates money to deserving clubs in support of flying fields, etc. Wayne is initiating the application and will keep us posted on his progress.



Other Events

On Sunday, 10/13/02, a special day is planned at the flying field. Children from a local drug/rehab halfway

house will be our guests for the day. The club is sponsoring this event and would like to encourage anyone with an "interesting flying object" to please attend with their craft. The goal of the day is to share some of the more interesting planes with these kids and demonstrate the enjoyment that comes from flying R/C. Because the number of visitors will be larger than usual, the club will institute a radio impound for this day only. Anyone interested in volunteering for the impound or providing other services, please show up early on Sunday.

Special Presentations / Internal Events

The AMA has required all clubs to review and update their bylaws. These revised bylaws will be voted on at the October meeting. Please attend and vote on these changes.

The club meeting was attended by students from San Diego State University.

They demonstrated their latest airplane used in the AIAA Design/Build/Fly competition. Members from the SEFSD Club have been instrumental in the past in support of these events. Most recently, the students from UCSD finished in the top 10% of entrants. The competition itself is scored on multiple factors including flight performance, product cost, and design / assembly. The flight tasks change each year as do the overall requirements specifications. This year, the SDSU plane carried 24 softballs, using an Astro 60 motor with 36 cells. The design of the plane was original and created especially for this event. The students arrived at the meeting with an audio/video presentation that proved to be very entertaining. Thank you to the students: Greg Marion, Brian May,



continued on page 9

INTERNATIONAL ELECTRIC FLIGHT FESTIVAL *and* The 2002 FAI Electric World Championships

The USA F5 team traveled to Winterthur, Switzerland in July for the 2002 FAI Electric World Championships. The competition consisted of two events, F5B Sailplane and F5D Pylon Racing.

Upon arrival we went to the competition site in Winterthur, a full scale sailplane airport. It had a mowed grass runway and looked out over beautiful, small Swiss farm fields.

We soon found out to our dismay that the F5B course would be flown over a field of 5 foot tall sunflowers, adjacent to the runway. We wondered how many times the sunflowers would suddenly jump up and catch an unsuspecting, speeding sailplane.

The Pylon course was at the other end of the mowed runway. However, the approach path to landing was over a field of six to seven foot tall corn. Have you tried to find a small pylon racer in a corn field? As we would later find out, it isn't easy, especially on a hot humid day.

Later that day we traveled about 30 miles to where the Swiss F5B team was practicing. The WC Contest Director told us that it was a difficult place to find, and he doubted that we could get there. He didn't know that we had a secret weapon in Thomas Pils, who lived for many years in nearby Munich and speaks German. Thomas must have jumped out of the car at least fifteen times asking local people directions to the flying field.

Well, we did find it after all, and spent a time visiting, and spying on their operations. We found that Kontronic was there delivering the last of the motors for the Swiss team.

We watched a couple of rounds of practice; then to our hotel for dinner and a good nights rest, badly needed after our long flight from the US.

The next day we did not get up too early as we were suffering from jet lag. After breakfast, we loaded our two station wagons up and headed out to our assigned practice field in Weinfeld, about half an hour's drive away. The R/C flying site was situated in the middle of a picturesque valley, on a parcel of land leased from a farmer who had fields surrounding the runway of corn, clover, wheat and even cows complete with Swiss cow bells hanging from their neck. We could hear the bells ringing in the distance while we practiced.

The USA team was made up of the following members:

F5B – Steve Neu, Jeff Keesaman, Thomas Pils of Santa Monica, CA and Team Manager Chuck Grim, with helpers David Pitcairn and Wayne Walker of SEFSD

F5D – Troy Peterson of Costa Mesa, CA, Kevin Matney of Erie, MI, Dan Kane of Arlington Heights, IL and Team Manager Chuck Grim of San Diego

The equipment we used:

F5B aircraft:

Steve Neu and Jeff Keesaman flew Avionik F5B aircraft made by Sergey Sobakin of Russia. Thomas Pils flew one of the Avioniks, and a plane of his own design, the third generation Verminator. He had the only plane in the competition with a full flying stab T-tail.

F5B Motors:

All of our F5B team used motors designed and built by Steve Neu. The motors used some rotor parts, a front end bell and magnets from Aveox. They had custom made laminations which were stamped and heat treated to order. The gearboxes had a 5.1:1 ratio

and were made from a combination of Robbe and Aveox Parts. The motor case and rear end bell were hand made from carbon fiber and epoxy. The stators were hand wound by Steve. Testing after the event of other motors used by others revealed that Steve's motors had the highest efficiency of all.

F5B Batteries:

The team used 24 cell packs of Sanyo CP1700 NiCad cells. The cells were all zapped, tested and matched by Jeff Keesaman. Jeff spent many restless nights getting up every hour or so changing the batteries under test.

F5D aircraft:

The entire team of Troy Peterson, Kevin Matney and Dan Kane Avionik F5D aircraft made by Sergey Sobakin of Russia. Kevin Matney brought some Sliver F5D aircraft but did not fly them in competition.

F5D Motors:

The entire team used Hacker motors. Kevin had some Astro Flight 05 brushless motors that he used in practice but he did not fly them in competition.

F5D Batteries:

The team 9 cell packs of Sanyo CP1700 NiCad cells. Troy Peterson's cells were all zapped, tested and matched by Jeff Keesaman. Kevin Matney and Dan Kane both took care of their own cell testing and zapping.

Back to Practice:

During our practice sessions in Weinfeldten we were able to not only hone our skills but learn some valuable lessons.

In San Diego we always practiced in the afternoon when we a good headwind into which we launched the airplanes. The weather patterns were quite different in Switzerland. There were often periods of still or near still air. This caused disastrous results twice. Both David Pitcairn and Jeff Keesaman crashed when a plane launched into still air; immediately upon starting the motor would skid sideways, tip stall and impact the ground with great force and a loud thud that could be heard over 150 meters away at the other end of the

course. The torque from the large 16 to 18 inch diameter propellers was too great to be controlled by small V-tails on Avionik F5B airplanes in still air. Thomas Pils had none of this problem with his Verminator, with its T-tail.

We had heard of people in other countries having this problem, that some were starting their motors at partial throttle on launch, then going to full throttle. Jeff Keesaman racked his brain for several hours and finally came up with a mixing scheme that would accomplish what was needed. Prior to launch he would hold down a spring-loaded switch on the transmitter. The motor would then start at partial throttle and automatically ramp up to full throttle over about 1/2 second. During the first leg of the distance task he would release the spring-loaded switch, leave it that way for the rest of the flight, and the throttle would operate normally.

Kevin Matney experienced significant aileron flutter on one of his flights during practice. David Pitcairn helped Kevin rework his aileron to servo linkages, which cured the problem.

Our practices at the field in Weinfeldten were a delight. The host club let us interrupt their own flying, and were very gracious. We would miss their closely mowed field during the contest.

F5 World Championships are divided into two parts. The first part is the International Electric Flight Festival where all teams and other flyers with valid FAI stamps are invited to compete. This allows the Contest Director to solve any problems that may arise, and gives teams an opportunity to get very realistic practice on the contest site. Other pilots can test their skills against the best in the world.

HEADLINES - to be continued next month -

Thomas Pils Wins F5B Silver

USA F5B (Sailplane) Team Wins Silver

USA F5D Pylon Race Team Wins Bronze

Product Review of Laser 3D

Tim Attaway

Right up front I will say that the Laser 3D is a fun airplane and it will do some free-style maneuvers pretty well (I prefer to use the description of free style to 3D). Free style, to go a little further, is a much more accurate way of thinking and flying a number of synchronized figures that flow together and look as though they have been planned. 3D, to me on the other hand, is flipping and gyrating the airplane aimlessly (sometimes) around at will without any kind of plan.

Free style figures for example are: Knife edge loops, lomcevaks, snaps and rolls to music with a beat, upright, knife-edge and inverted flat spins, point rolls, slow rolls, rolling circles and all manner of precision flying.

3D, in my opinion, is constantly flying the attitude of the airplane and giving inputs to get the plane moving gyroscopically. This would include: hovering, torque rolling, water-falls, harriers of all types, elevators...they all require fairly precise inputs constantly but if you are not doing it perfectly no one will really notice because you are flying the attitude of the aircraft.

I chose the Laser as a project because I wanted an electric that would fly precision and do some free-style maneuvers. I was hopeful that the aircraft would be able to pull vertical out of a hover. The airplane was bought from Diamond at the last Mid-winter Electric. The design seemed to be a compromise between a pattern type airplane with a long tail moment and a wing with the fat airfoil and constant wing plan-form. Ray Fulks had me talk to Helmut and also Shawn Plummer and we came up with a combo that we thought might fill the bill. The Hacker B 50 12 XL originally was the motor of choice, because others were using it and as most of us know that experimenting with lots of motors and batteries can be very expensive. I just relied on experienced people to put this together. The kit itself was designed around a fuel motor, the OS 46, and the plans do not show anything



having to do with electric adaptation. Therefore, much discussion ensued with Ray Fulks and Chuck Grim and others about how to put the number of cells (18) into the fuselage and get proper CG and keep the motor cool, etc.

Many of the modifications were just based on necessity and evolved as I built the airplane from sticks. It was my sense that it all would balance if the 18 cells lay flat above the wing. Reinforcing that area and building a tray and constructing a removable canopy and turtle deck above the battery was a primary job. Once that was engineered then putting servos in the tail was next. The original plan had servos up front and I wanted them in the back. Two Cirrus low profile quick ball bearing servos went on the elevators. These elevators have a lot of area and need to be sheeted. The air-balancers are huge and the sticks to build the fin and horizontal stab and elevators are too flimsy. They are not as robust as, say, the E3D and in my opinion needed sheeting. I added bracing throughout the tail-feathers and sheeted only the elevators. This sheeting took place after the first flight.....flutter was evident at speed in that first flight.

I prefer to cover all my aircraft with a visually helpful top and bottom and I used monokote. The see through coverings do not do it for me, even though they are lighter and show off the structure. Keeping it light was a consideration but being pleased with its appearance and having it function for flying orientation was more important to me, therefore the aircraft gained a few oz.

Other equipment on board that helped bring the craft to 7 pounds is as follows: controller for the Hacker B 50 brushless was a Jeti Masters 77, 700 Mah battery pack, 9402 Futaba servo on rudder, 9101's Futaba on each aileron 17 x 10 apc propeller, 18 - 2400 XCP batteries, JR950 receiver, and assorted wires. To counter-act the weight of 7 pounds

there are approximately 1100 square inches which leads to a 16 wing loading figure. This is pretty favorable, not as good as say the E3D or many gliders, but remember I want this aircraft to fly with some precision. This is a good range for precision flying.

After test flying the aircraft for a while I noticed that the propeller made a lot of difference in how the Laser flew. I experimented with several and the one I like, because it gives a better constant speed, is the 17 - 10 APC. It also provided less pitch sensitivity which was very evident as more speed was attained. To go farther on this, much changing of center of gravity and decalage adjusting was done to try to achieve good horizontal lines with power off and power on and with little success. Then the propeller was used to slow it down and it improved substantially.

Most aircraft will pitch and roll on rudder input in knife-edge and so I was encouraged to see that mixing of some up elevator and a little aileron to work with rudder inputs kept the Laser straight while doing knife-edge flight. Also, I used my radio to provide differential movement of the ailerons to keep the Laser from barrel rolling.

At the time of this writing I have approximately 40 flights on the Laser and continue to experiment with different flight mode settings on my JR 10 X radio. Flight times are in the range of 5-6 minutes depending on how I conserve the batteries. Precision flying is pretty good and I would rate it a 4 or 5 on a scale of 10. It does not snap roll very well and it still is pitch sensitive. Rolling maneuvers show some roll rate issues and it speeds up and slows down on its own during rolling circles. Torque rolls are not that easy and it does not hover for very long without falling out. I think the weight is an issue here. Note: the aircraft was designed to fly very slowly and at a weight of around 5 pounds with an OS 46. Water falls are simple, elevators are ok, knife edge flight is excellent as long as the electrons hold out. Slow flight is outstanding with the wings holding the plane steady forever....not much rocking at all when holding a little throttle and nose into the wind. It will land at walking speed. All together I am satisfied with the results at this time and I continue to fly it at SEFSD on Wednesdays when we do an aerobatic clinic at around 9:30 AM. Come on out and join in.

—continued from page 5

Matt Gregory, and Cathryn Miller.

Safety, Safety, Safety....

There was no formal Safety discussion at this meeting.

The Training Program

Flight Training has been going very well recently. In addition to the ongoing beginner instruction on weekends, there is now aerobatic training for those interested. The trainer, Tim Attaway, is available at the field on Wednesdays at 10:00 AM. Reservations or a formal sign-up is not required. A new volunteer has joined the ranks of “official trainers.” His name is Chris Fox and he will be at the field to help on weekends from 8:00 – 10:00.

How To

There was no specific “How To” topic this evening.

Show & Tell

Don Haines brought his new Model Tech P-51 Mustang. The plane is a .46 size ARF that Don flies with an Astro 25 geared motor and 16 cells.

Mike Blott brought his GWS Beaver and showed how he increased its flying ability by sealing the undercambered wing with cellophane wrap.

The meeting adjourned shortly after 9:00 PM.

Electroglide 400 (in August)

When the cat is away you know what will happen. All it took to get people out for the Electro glide contest was to cancel it. In July, five of us had an impromptu and unofficial contest. Pictured at right are (l-r) David Fee, Tom DeShon, Doug Rubin, Tim Ardon and Pedro Brantuas. Tom and Tim flew "Sunbirds" built by Mike Morgan. Pedro built his own, using Mike's as an example. Doug piloted a unique composite ship with enormous full-span flaperons and



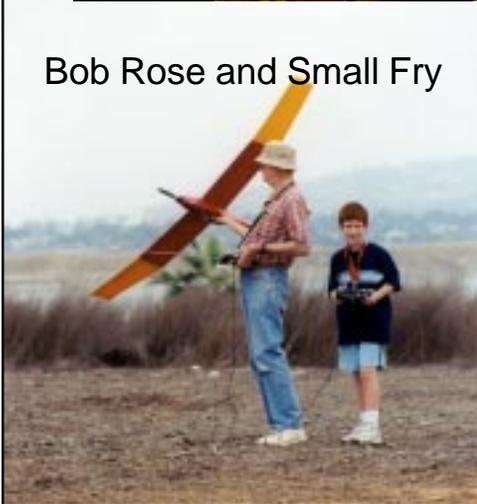
David flew an electrified Gnome HLG. There was no lift to speak of, so the competition was primarily determined by climb rate and landing points. There were some near misses, but no mid-air collisions. Things got a little interesting when Tim decided to go for a spot landing on top of a light pole (no

points for that). Pedro was the man to beat, artfully guiding his ship to the victory circle. A great time was had by all, spectators included, which should serve as a reminder of the value of events such as this one.

David Fee



Bob Rose and Small Fry



Calculating Area of Curved Wingtips

Author : martin@gregorie.demon.co.uk

There's an old lab trick for measuring the areas of arbitrary shaped objects that I'm surprised nobody has mentioned yet. So, here goes.

- 1 Trace the outline of the tip panel onto good quality paper.
- 2 Cut the tip shape out of the paper and weigh it.
- 3 Cut a square of known area from the same paper and weigh it.
- 4 Calculate the tip area from the two weights.

For this to work you need to use paper sheets that are big enough to allow the complete tip to be traced on a single sheet. 'Good quality' paper means anything that does not vary in weight from sheet to sheet. We used to use chart recorder paper in the lab (measuring the area of peaks output by a gas chromatograph), but typing or ink-jet paper should be fine. The known area should be similar in weight to the tip tracing.

You do need a decent scale for this to work, but anything that weighs to 1 - 10 mg should be good enough if the pieces of paper weigh more than a gram or two (10 mg accuracy is +/- 1% of a 10g piece of paper).



Doug Rubin
launching David Fee's
SkaT



David launching
Doug's VORTEX



Howie Harvey's Lanzo Bomber



Uranna Greene

