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**May 18th thru 20th**  
 Pilots - \$10 a day or \$25 for three days - free to public



April, 2007  
 Volume xx, Issue 4

# PEAK CHARGE

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

**Monthly Meeting**

Aerospace Museum, Balboa Park  
 4th Tuesday, 7:00 PM April 24

**Electroglide**

Saturday following Meeting  
 9:30 AM, April 28

**F5B Contest**

Sunday, 11:30 AM, May 27

## SEFSD

Perpetual Meritry Service  
 Award  
 Winner for 2006

**Don Griffin**  
 and his T-33 Trainer



## 2007 Officers

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Raffle 619-562-3774	Robert Abel Abelsantee@aol.com
Flight Instructor 858-272-6882	Pedro Brantuas pedro@san.rr.com

## 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.

## SEFSD Service Award for 2006

By Tim Attaway

In my many years of teaching.....30 to be exact.....it became evident that recognition of good works and excellence in the class room and the school was a wonderful way to show the people in your little community, the school, that you appreciated their commitment, dedication and achievement. It therefore naturally occurred to me that our fine club has many members that have distinguished themselves with service to the club over these many years. The list of members to consider would include: Steve Manganelli, Steve Neu, Wayne Walker, Chuck Grim, David Fee, Bill Fee, Ray

Fulks, Pedro Brantuas and probably you can think of a few more. When considering what to propose to the board I was thinking that one of these might be a good start for this annual award. All have provided leadership and vision to steer the club to a common goal of securing a very unique flying site in an ideal location. They are all fine gentlemen that indeed have earned our respect and admiration and I salute them.

For the award in 2006, however, a person was chosen that began as a member only 7 years ago in 2000. He has had a lifelong interest in aircraft and in

cont'd p 4

### Aerospace Museum Monthly Meeting site



### Field

Flying Field GPS Coordinates

AMA Charter Club 3078 Latitude 32.7626416 N Longitude 117.2143138 W

web site: <http://sefsd.org/>

Zip Code 92109

behaviour and mechanical drawing causing the polymer chains to orient in the direction of the fiber. The carcinogenic Hexamethylphosphoramide (HMPA) was originally used as the solvent for the polymerisation, but the precautions necessary made production highly expensive. A new solvent, a mixture of N-methylpyrrolidone and calcium chloride, is now used.

Kevlar is expensive, in part, due to the difficulties arising from the use of concentrated [sulfuric acid](#) in its manufacture. These harsh conditions

are needed to keep the highly insoluble polymer in solution during synthesis and [spinning](#).

## Chemical properties

Fibers of Kevlar consist of long molecular chains produced from poly-paraphenylene terephthalamide. There are many inter-chain bonds making the material extremely strong. Kevlar derives a portion of its improved strength from inter-molecular [hydrogen bonds](#) formed between the carbonyl groups and protons on neighboring polymer chains and the partial pi stacking of the benzenoid

[aromatic stacking interactions](#) between stacked strands. These interactions have a greater influence on Kevlar than [van der Waals](#) interactions and chain length that typically influence the properties of other synthetic polymers and fibers like [Dyneema](#). The presence of [salts](#) and certain other impurities, especially [calcium](#), could interfere with the strand interactions and caution is used to avoid inclusion in its production. Kevlar's structure consists of relatively rigid molecules, which tend to form mostly planar sheet-like structures that have similarities to [silk](#) protein.

## another Editor's note:

More often than not, I get no feedback on Peak Charge content, unless I've screwed up yet again, or a word of encouragement from a Board member (no one else wants the job) but I have received a number of

favorable comments about last month's article on balsa wood, a product we all use. Most of us are aware that the product varies greatly in weight and strength, and that there is something called "C" grain. Now you know a little more.

I am encouraged to look for other articles on products we use in the hobby every day and sort of take for granted.. Or perhaps you've never considered using a product, but might with a little encouragement.

## ... still more

Today I filled four more holes in the Peak Charge archives. April, May, July and August 1994 have been scanned "booked" and PDF'd to our webmaster, Stelios Jackson for posting at <http://www.sefsd.org/>.

September, October and November of '94 are missing., and all of '93 (and anything earlier) except for October which is already posted are missing.

Those of you who have been around from the beginning or know someone who was part of the action in the

early days and isn't active anymore help me save our history for posterity. Wayne Walker and Steve Manganelli have coughed up everything they have. Roger Jaffe, where are you?

I have taken a large bite out of the archive Apple (PC, that is) but I have January '95 through February '96 on hand ready to roll, and would be nice to fill all the holes.

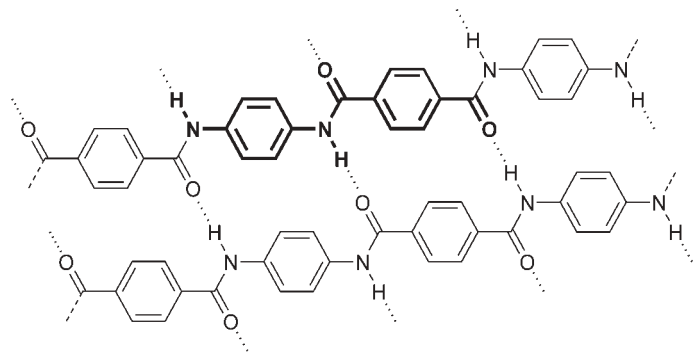
Computer Edge has all their past issues archived and on line, PLUS a program that allows you to search

their back issues on any subject. How often have you recalled a past issue that had a solution for a current problem, and searched in vain.

With a little help and perhaps some freebie software off the net. we may just come up with a minor miracle of modern times.

Meanwhile, back issues make good reading. They remind us just how far we have come, and yet many fundamentals of yesterday are still sound today..

# Kevlar



Chemical structure of Kevlar. Bold: monomer unit; dashed: hydrogen bonds.

**Kevlar** is the [DuPont Company](#)'s brand name for the particularly light but very strong [synthetic fibre](#). Created in DuPont's labs in 1965 by [Stephanie Kwolek](#), Herbert Blades, and Phil Thier, Kevlar was first used commercially in the early 1970s. It can be spun into ropes or sheets of fabric that can either be used as-is, or used in the construction of [composite](#) components. Kevlar is now used in a wide range of applications, from bicycles to [body armor](#), due to its high strength-to-weight ratio (see [Tensile strength](#)), "...5 times stronger than steel on an equal weight basis..."<sup>[1]</sup> It is a member of the [Aramid](#) family of synthetic fibres and similar to [Twaron](#) from [Teijin](#).

## History

In the 1970s, one of its most significant achievements in the development of body armor was the invention of DuPont's Kevlar ballistic fabric. Ironically, the fabric was originally intended to replace steel belting in vehicle tires. The development of Kevlar body armor by NIJ was a four-phase effort that took place over several years.

The first phase involved testing Kevlar fabric to determine whether it could stop a lead bullet. The second phase involved determining the number of layers of material necessary to prevent penetration by bullets of varying speeds and calibers and developing a prototype vest that would protect officers against the most common threats: the 38 Special and the 22 Long Rifle bullets.

By 1973, researchers at the Army's Edgewood Arsenal responsible for the bullet proof vest design had developed a garment made of seven layers of Kevlar fabric for use in field trials. It was determined that the penetration resistance of Kevlar was degraded when wet.

The bullet resistant properties of the fabric also diminished upon exposure to ultraviolet light, including sunlight. Dry-cleaning agents and bleach also had a negative effect on the antiballistic properties of the fabric, as did repeated washing. To protect against these problems, the vest was designed with waterproofing, as well as with fabric coverings to prevent exposure to sunlight and other degrading agents. Kevlar was first used commercially in the early 1970s. It can be spun into ropes or sheets of fabric that can either be used as-is, or used in the construction of composite components. Kevlar is now used in a wide range of applications, from bicycles to body armor

## Properties

When Kevlar is [spun](#) in the same way that a spider spins a web, the resulting fiber has tremendous strength, and is heat- and cut-resistant. The fibers do not [rust](#) or corrode. When woven together, they form a good material for mooring lines and other underwater objects.

There are three common grades of Kevlar: Kevlar, Kevlar 29, and Kevlar 49. Kevlar is typically used as reinforcements in tires and other rubber mechanical goods. Kevlar 29 is used in industrial applications such as cables, [asbestos](#) replacement, brake linings, and body armor. Kevlar 49 is considered to have the greatest tensile strength of all the aramids, and is used in applications such as plastic reinforcement for boat hulls, airplanes, and bikes.

Kevlar is susceptible to breakdown from [ultraviolet light](#) (such as sunlight) and hence is almost never used unprotected or unsheathed.

## Production

Kevlar is [synthesised](#) from the [monomers](#) [1,4-phenyldiamine](#) ([para-phenylenediamine](#)) and [terephthaloyl chloride](#) in [condensation reaction](#) giving [hydrochloric acid](#) as byproduct. The result is a liquid-crystalline

# The President's Corner

*By David Fee*



April is here and spring is upon us, so welcome to the latest issue of Peak Charge! This month, preparations for the MWE Spring Fling (May 18-20) are really getting into full swing. As the days get longer and warmer, we'll likely be spending more time down at the flying field. While you're there, please keep an eye out for anything you can do to help keep the field in good shape. If you find debris on the runway, please move it to an appropriate location. Pilots, remember to replace your divots!

With field maintenance in mind, let me bring your attention to the following notice from Chuck Grim:

### SEFSD FIELD WORK PARTY

**We will have a Work Party at the field Saturday April 28th immediately after Electroglide to clean the sand from the carpet and from the runway near the fence. Please bring flat shovels, buckets, wheel barrows, brooms and dust pans. We need to get the field looking good before the MWE Spring Fling.**

Many of you have already signed up to help with this year's MWE, but several positions still need to be filled. Please see the sign-up sheet on the SEFSD website for current openings. Stelio has done a great job of breaking the tasks into manageable chunks and the time commitments need not be great. Any help is greatly appreci-

ated and will make a significant difference.

On a lighter note, I'd like to share something that a friend from college sent me recently. We attended UCSB together and we lived in a little area called Isla Vista (IV). He and I would fly our electric models in a large field adjacent to campus and we'd often joke with one another about the various superstitions we had. One of our most irrational fears was that of the pre maiden-flight photograph. Everyone knows that you should never say "I'll just make one last flight," but have you ever thought of the potential for disaster associated with taking photographs of your pride and joy? Surely you are begging for death and destruction! We thought about it – a lot. In fact, we started to write a song about it. The other day, my friend felt compelled to complete the lyrics (which I will reproduce here). If you are familiar with pop music from the 1980's, this song is sung to the tune of "Girls On Film" by Duran Duran. "Planes On Film"

See them walking planes in hand across IV at midnight  
Heads turning as a motor takes the plane out of sight  
When lining up to land on the track  
The aircraft starts rolling on her back,  
on her back  
And I sense impending doom as I

loose control all the way down my spine

Planes on film, planes in ground,  
planes on film, planes in ground

Monokote and Balsa fill the sky as she's falling  
An endless trail of parts litters the field where she lies  
The horrid mess looks worse as you near and the motor is now in the tail,  
it's not fair, it's not fair  
And you wonder how this ever occurred as you go home again

Planes on film (two minutes later),  
planes in ground  
Planes on film (got your picture),  
planes in ground

The long hours spent building seem like a million  
Hearts pumping as the plane departs from your hand  
Take one last glimpse before the flight I start throttling up, radio,  
holding tight  
Give me shudders as I pray that the trim and incidence are correct

Planes on film (she's made out of carbon), planes in ground  
Planes on film (two minutes later), planes in ground  
Planes on film (CA'd together), planes in ground  
Planes on film (parts all over), planes in ground

Planes on film (get a trash bag),  
planes in ground

So, with that pretty picture in place keep in mind that takeoffs are optional, but landings are mandatory! Have an excellent month, and I'll see you at the field!

-David Fee

fact was one of those, like me, that began flying u-control airplanes when just a youngster. He has born in Honolulu, Hawaii just 14 months before the Japanese struck Pearl Harbor. His father was, sadly enough, one of the first to give the full measure of devotion to his country at Kaneohe in that attack. After a few years of growing up he moved to San Diego with his mother and on his 17<sup>th</sup> birthday he joined the Navy to serve his country. He became an aircrew man and mechanic on the F- 8 Crusader and the F – 4 Phantom and he was one of the

first graduating classes in the Jet School in Memphis and flew back seat on aircraft. After 20 years he retired from the Navy in 1977 and began working on the Pratt and Whitney turbines of the San Diego Gas and Electric for another 22 years. When I asked him what he enjoyed the most about the SEFSD club he said very quickly that it was definitely the people that drew him to the club. His good buddy Harold Bettis was sitting there with us and they looked at each other and winked. Don and his wife Donelle have been key to the

last three MWE and any successes we have enjoyed have come from people that exemplify the spirit of we can and will do whatever is needed to insure the success of the event. It is clear to me that people like Don, demonstrating a positive “I will get involved” attitude is the heart beat of the club and I believe that we have quite a few other members of the SEFSD that are out there contributing in 2007 and one of them will be joining Don on that plaque in the not too distant future.

Congratulations Don Griffin for the Service Award for 2006!

Editor’s Note:

This award was established to give recognition to an individual (NOT on the Board with an assigned responsibility) who sees a need and quietly gets the job done, not looking for (or normally receiving) any personal recognition or

compensation.

It’s called teamwork., as in all club members rolling up their sleeves and getting involved; but many are satisfied to sit back and complain about what

isn’t being done. “Why isn’t the board doing anything about the condition of the field?” Of course, for anything involving spending club money, or requiring approval of the Parks board, SEFSD committee action is necessary.

### SEFSD Book and Video List

**Book Title**

- Electric Motor Handbook
- Entering Electrics
- Foam Wings
- The Quiet Revolution
- RC Airplane Finishing & Detailing
- RC Airplane Workshop Secrets
- Also Available: Some back issues of S&E Modeler Magazine

**Video Title**

- 1994 KRC Electric Fly
- 1996 KRC Electric Fly
- 1997 KRC Electric Fly
- 1996 London Bridge Seaplane Classic
- 1996 NATS Highlights
- 2000 San Diego Midwinter Electrics
- Advanced Kit Conversions
- Airborne R/C Video (Fred Harris)

- Airplane ( Joe Wurts )
- Airforce Top Gun
- A Celebration of Eagles
- Basic Construction for Beginners
- Building with Foam
- Byron Originals show season 1985
- Desert Storm/ Tornado
- Double Eagle
- SEFSD Peak Charge
- Electric Jet Factory
- Electric Flight ( Building & Flying )
- Electric Flight & Schneider Cup
- Electrifying the FANTASY (Vol. III)
- F-16 Falcon
- Float Flying . John Sullivan
- Gas to Electric Conversions
- Learn How to Build a Power Airplane
- Let.s Get Serious About Electric Flight
- Mini-Max Power Gliders

- Monokote I
- Monokote A
- Neat 2001+
- Power for Performance Electric Flight
- Schneider Sport Electric
- T-Birds
- U.S. Air Core Basic Building Tips
- Vacuum Bagging tips
- Warbirds over Schenectady
- Wring it Out ( Vol. 1 )
- Wring it Out ( Vol. 2 )

**DVD.s:**

- Pro Aero Tow
- Secrets of Thermals
- Endless Lift III
- Just Want to Fly
- Airshow 2 (2001 Mid-Winter Electrics)

## The April Raffle by Robert Abel



A belated happy Easter to all. You still believe in the Easter Bunny don't you. He left me some goodies for the April Raffle. Notably, an E-Flite mini edge 540 3D balsa ARF. A 480 out runner is included with the kit, carbon fiber landing gear is also in the box. A power supply for your bench to power your D.C. battery charger. A deluxe hobby knife set from Excel. A group of miscellaneous

items will also be on hand. Mike Morgan donated one of his new 3D foamie airplanes for the raffle in March. They fly exceptionally well and go together real nice and easy. He has a biplane in the testing phase. Soon to be released. It is a really nice looking biplane. Hobby People at the Convoy store, John at Discount hobbies are this months suppliers. We had a smaller turnout for the March meeting than I expected but was well attended. Thanks to all who bought raffle tickets. April 24th is the next regular meeting date. More volunteers are still needed for our spring fling which is right around the corner. Shifts are easy and not to long. It is our time to bask in the glory of the R.C. Community as a club. It takes teamwork from all members to make a club, not just a few elected spokespersons. Please help with what you can. Safe Landings, Raffle Chairperson, Robert E. Abel

### Electricity-Conducting Plastic

Electronic devices may soon be made with all-plastic chips that would allow the gadgets to survive being dropped over and over. Specially rebuilt plastic conducts electricity just as well as the silicon wafers that are commonly used to make the semiconductor chips that are the brains of cell phones, MP3 players and other portable consumer electronics. In plastics, the movement of electric charges is hindered by the shape of the polymer, the chain-like molecular structure at the basis of each kind of plastic. A German group reshaped a polymer to form a ladder-like structure. By bombarding the specially developed plastic with electrons from a particle accelerator, researchers studied rapid electrical reactions and demonstrated the new plastic’s ability to conduct electricity much better than regular plastic or silicon chips. The mobility of charges along isolated chains can be as high as the mobility of charges in conventional semiconductors

If an earthquake suddenly opened a fissure in a runway that caused an accident, the NTSB would find a way to blame it on pilot error.

Any attempt to stretch fuel is guaranteed to increase headwind. A thunderstorm is never as bad on the inside as it appears on the outside. It's worse.

Son, I was flying airplanes for a living when you were still in liquid form.

It's easy to make a small fortune in aviation. You start with a large fortune.

A fool and his money are soon flying more airplane than he can handle.

Guts will do for brains, but not consistently, and not for long.

### SCHEDULE OF EVENTS

- April 21-22 ..... IMAC Tucson
- May 5-6 ..... IMAC Las Vegas
- May 12 10 AM..... SEFSD Precision Aerobatics Contest 4
- May 18-19-20 ..... SEFSD MWE Spring Fling
- May 19-20 ..... IMAC Riverside CA
- June 2-3 ..... IMAC Oakdale CA
- June 9 10 AM .....SEFSD Precision Aerobatics contest 5
- July 14th .....San Diego Association of Model clubs Swap Meet at the Chula Vista ModelR/C Club
- Aug 25 10 AM..... SEFSD Precision Aerobatics Contest6

## MWE/Spring Fling Cordinator *Stelio Jackson* Communique

Ever get that feeling, flying at cruising altitude and everything seems to be going so slow beneath you. You seem to have plenty of time to do everything. Then you come on the approach pattern and things start to hasten up. You line up with the runway and you start descending. And then the closer you get the faster things are happening. You are flying faster (or so it seems), the runway is short and getting shorter every second that passes before touchdown and your heart is pounding.

Well, that is how it feels for me right now. By the time you read this there will be less than a month left before our club hosts the MWE Spring Fling 2007, on May the 18th-20th. And I feel like I am on the approach pattern.

Time is running out and there are still a few loose ends that need to be tied before landing.

Quite a number of you (and some from other club(s)) have already signed up to volunteer and help us host a successful event, but we need more.

For starters we still need coordinators for the following positions:

1) Raffle Receiving: Your assignment is to coordinate with the vendors

after their arrival and receive from them their raffle donations. Label the donated items and put them in the raffle display area.

2) Volunteers' Coordinator: Supervise the volunteers and make sure they get assigned to whatever needs to be done.

3) Parking Control: Supervise the volunteers at the gate, and keep the parking situation at the field under control.

4) Trash Management: Supervise the volunteers for trash control and ensure that the trash bags get changed when they are full.

5) Helicopter Pad: Supervise the helicopter pad area for safe and orderly operations.

6) Limbo Kombat: Organize and carry through this crowd pleasing/airplane thrashing event.

And then there is the need for the foot soldiers, worker bees, dedicated club members, or whatever you would want to call yourself.

There are openings for helpers on setup day, Thursday the 17th in the afternoon.

For Friday we need additional people

for parking control (one hour shifts at the gate- 9 needed), transmitter impound (three hour shifts - 4 needed), flight line control (three hour shift - 1 needed)

For Saturday we need additional people for flight line control (three hour shifts - 2 needed)

For Sunday we need additional people for transmitter impound (three hour shifts - 5 needed), flight line control (three hour shift - 3 needed)

And finally for Sunday we will need a clean-up/tear down crew. The more that stay and help the quicker we will be done.

Alot of people come and help just because they... (you fill in the reason). Others might need some enticement and for this year the enticement is that you will get a raffle ticket and a one day pilot pass for each day (or part of a day) that you come and help.

You will have another opportunity to sign up at the next monthly club meeting on the 24th of April or you can send me an e-mail ([stelioj@cox.net](mailto:stelioj@cox.net)) with the time, day, and assignment of your preference.

Hope to see you there.

### Awesome Radio Controlled model aircraft!

<http://users.skynet.be/fa926657/files/B29.wmv>

I found something interesting on the net that you may want to mention in the newsletter. There's an airplane "boneyard" just outside of Tucson, AZ, at the Davis-Monthan Air Force Base. Acres and acres of planes in various states of storage and disassembly. Apparently, the majority of these planes could be reassembled and returned to service if necessary. They run tours of the site, but you can also check out satellite pictures online by going to <http://maps.live.com> and entering Tucson, AZ. The base is just to the southeast. If you switch to "hybrid" or "aerial" mode and scroll around the area, you can see all the planes and zoom right in on them.

Andy Reynolds

## Minutes of the March, 2007 SEFSD Members Meeting

By *Steve Manganelli*



### Introduction-

Pinch hitting again for Jeff Keasaman who was absent. Mr. Fee started at 7:07 in front of 37 folks including Rick Matthews, Tom Dart, Mike Chambers (welcome back Mike) and Ray Stitts making his first meeting though a member for a year, welcome all!

### Announcements and Club Business-

Stelio Jackson summarized much progress made on MWE planning. Ray Fulks secured the permit for only \$900, Stelio is seeking volunteers for some key jobs : Prize Receiver/Coordinator, Limbo Combat CD, General Helper Coordinator, Refuse Manager and Parking Control Coordinator. General staff to include Thursday Set-up and Sunday Cleanup folks. How about it folks? Send a quick E-mail to Stelio telling him what you can do for your Country...er club! Volunteers are needed; keep May 18th, 19th and 20th open on your calendar!

Ray Fulks reported briefly on the last EMAC Pattern event held on March

10th. Again a good learning experience was had by all, food was good, cumulative standings are listed in February's Peak Charge.

Frank Gagliardi reported on the first combined AT-6 and Speed Stick 200 race held March 17th. Nine entrants in SS200 made for a close field with the NiMH class deemed fast enough and LiPo too fast! Frank loaned a plane to Steve Belknap whom then beat him using it. Needless to say, Steve B. will have to build his own for future racing! The Devil #666 had his due (again) in AT-6 Open Class. Next race is April 21 and may be at the Miramar field, even if not, it will be over by the time this hits print. The Speed Stick 200 is a new one design model designed by Frank and Mike Morgan to get you into racing without have to build the fairly complicated HOB AT-6. The SS-200 is computer designed and NC router cut. The parts interlock and construction is a snap. Get yours from Mike Morgan at [Morgantech.com](http://Morgantech.com) and get out there and race.

Last item was possible pursuit of Morely field for an auxiliary flying field possibly catering to either smaller models, helicopters or 2.4 Ghz radio equipped models. Some discussion ensued about possible pratfalls and/or frequency non-problems, but no champion has emerged to the legwork. Per past board of directors' discussions, a champion is required in order to pursue this opportunity : it won't happen by itself folks!

### Show and Tell-

Frank Gagliardi was the lone exhibitor showing a beautiful E-converted Byron MIG-15 built in 1987 and

resurrected after hanging up ICE engine and all. The model now uses a Hacker C50-14XL motor, Castle 110HV controller and 10S- 4900 NeuEnergy cells for power in the original Byron fan. Frank cites 12 lbs static thrust and the model weighs only 12 lbs, 2oz. ! Model still contains old Rohm-Air retracts which work perfectly; new JR radio does the guidance. Should have re-maidened by the time you read this.

### The Program-

Next came the Program, by myself : a how-to and demonstration of how to make a lightweight carbon and fiberglass motor mount for a typical ARF-glow conversion. The technique uses a "lost foam" process, the foam filling the gap between a fiberglass motor plate and a fiberglass firewall mount. Some chamfers in the foam allow a built-in fillet creating a complete mount in 1 fiberglass/carbon laminating operation. I gave about a 15 minute slide show and then finished up the sample piece I had formerly prepared, doing the fiberglass/carbon work in about a like amount of time.

### Raffle-

The green light was given to start pulling the tickets at around 8:40, the well selected booty was claimed by the lucky ones (almost never me) and the meeting was officially adjourned before the required hour of 9:00 P.M.

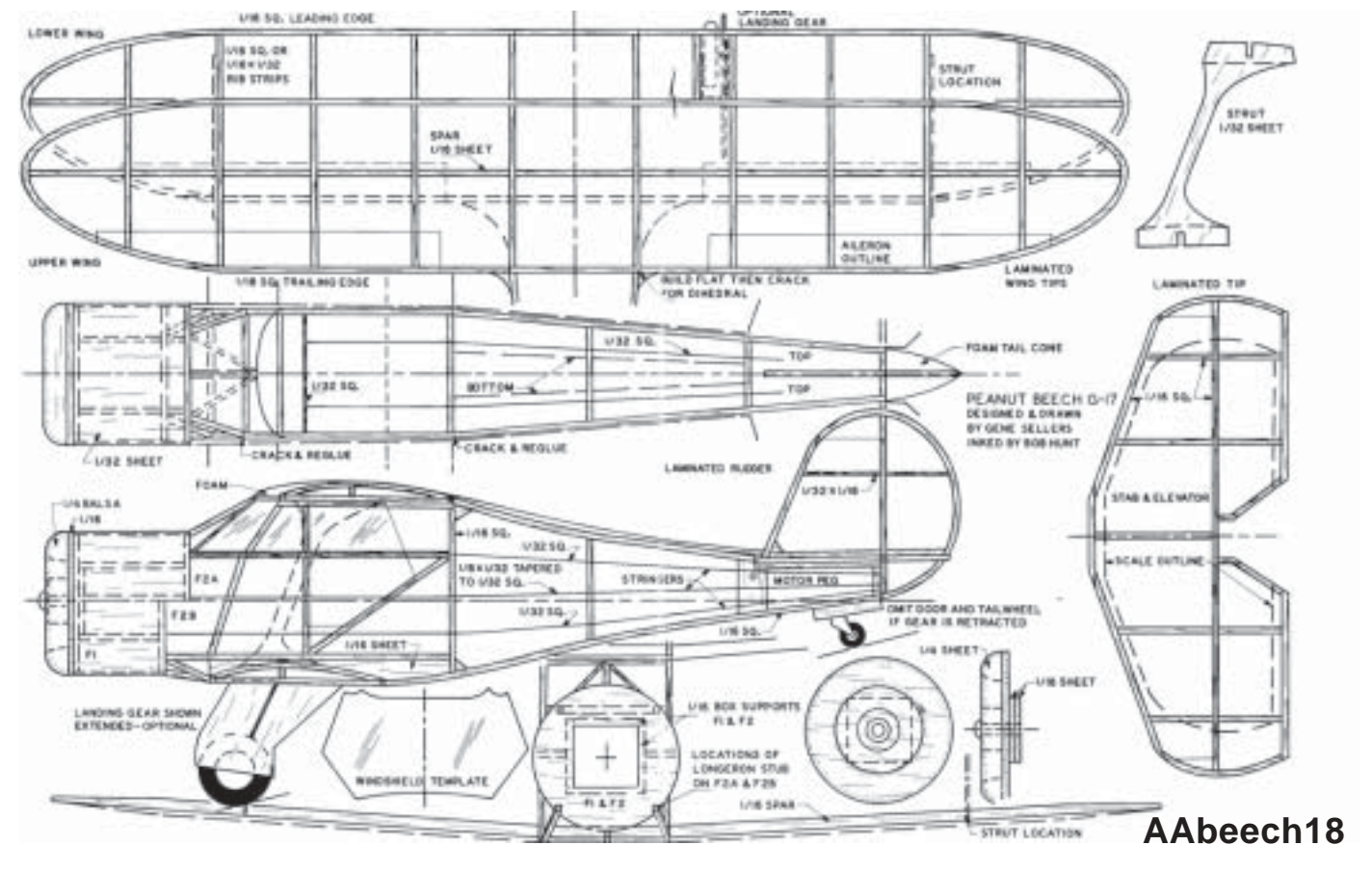
Respectively Submitted,

Steve Manganelli, COB



Silent Electric Flyers of San Diego

Peak Charge



AAbeech18

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