EL TORBELLINO

NEWSLETTER OF SAN DIEGO ORBITEERS FREE FLIGHT CLUB

OCTOBER 2015

The Prez's Corner *– Don Bartick*

How quickly September disappeared. Arline and I made the trip to Lost Hills for the US FF Championships. The weather over the 4 days we were there was right on for free flight. Temperatures in the mornings were in the low 60's rising to the low to mid 90's by the afternoon. Again we see a decline in attendance. Even with a potential $5000 payoff, the contest only drew 50 contestants. As such, participation in individual events was poor. The payoffs for each event is based on the number entered. For example, with 3 entries, the winner received $25. Second and 3rd place receive certificates, but no cash. For each additional entry, the pay off increased by $25 for the winner. With 4 entries, 2nd place got some cash. With 5 on up, 3rd place started receiving cash. Because of the low attendance, not much of the purse was awarded. I did manage to win 1/2A Nostalgia. With 3 entries I received $25.

The US Free Flight Championships is looking for a Contest Director for 2016. This a AAAA National Contest. As such the CD can't participate in the flying. The contest is held around the 3rd weekend in September at Lost Hills. The LHFFMAA Board agreed to compensate the CD with mileage and 4 nights of lodging up to a total expense of $1000. Anyone out there in Orbiteers land interested, contact Walt Ghio at F1Bwalt@comcast.net.

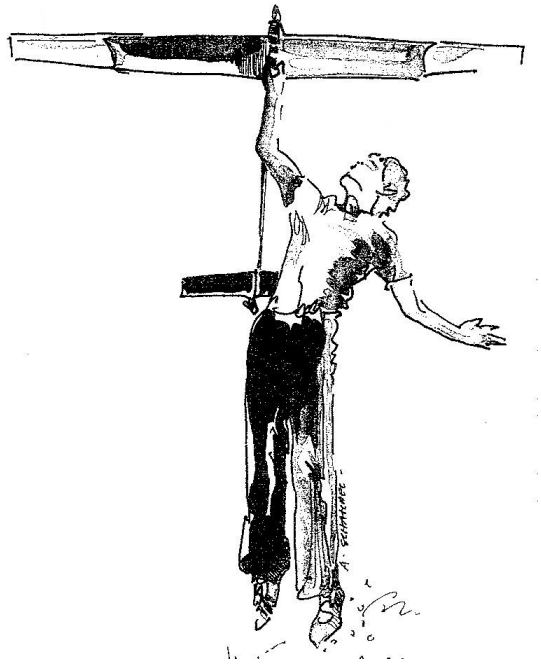
The ET has been really enhance by those of you who have submitted construction and 'how to' articles for publication. The articles are extremely valuable to all of us. Keep it up. I know Mike J is a bit nervous with submitting his 'how to' since he feels that being a new comer to our hobby does not make him an expert. Well some of us are quick studies and tenure does not make an expert. So keep learning Mike J and keep sharing with those of us that could use your advice.

A small committee consisting of John Merrill, Mark Chomyn & myself will be investigating property near our old site at Otay Mesa for use as a new flying field. We're waiting for John Merrill to have a free day during the week so we can convene at the SD County Assessor's office in El Cajon. There we can research for contact info on property owners. There is plenty of land east of our old site that would be viable for our purpose.

I'm in typical panic mode trying to finish my SE5a for the WestFAC contest in 2 weeks. This should be a fun filled 4 days of flying. See lots of you there.

That's a wrap for now.

Remember: "Idle hands are the tools of the devil." -Author Unknown
So go build something.



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ORBITEERS MEMBERSHIP DUES

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Submit Dues to Club Treasurer:
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THE FINE PRINT THE FINE PRINT

El Torbellino is the official newsletter of the San Diego Orbiteers, an Academy of Model Aeronautics (AMA) Charter Club (#1113) and a California not for Profit Corporation. This newsletter is sent monthly to all paid members, selected exchange and magazine editors. Non-Members may subscribe at $15.00 per year within the U.S.A., offshore price will be adjusted to reflect the postage required. Materials from El Torbellino may be reproduced on an unlimited basis by other publications, but proper credit is requested.

ORBITEER WEB SITE

www.SanDiegoOrbiteers.com
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Sept. 20, 2015 OUTDOOR MONTHLY

COUPE

1. Greg Hutchison 354
2. Mark Chomyn 261*
3. Mike Pykelny 261
4. John Hutchison 90
5. Don Bartick 29

*Tie was broken using highest single flight time.

Power Combined

1. Mike Pykelny 332

Glider

1. Greg Hutchison 91
2. Don Bartick 67
3. Mark Chomyn 41

Results supplied by M.Chomyn

Photos by Arline Bartick

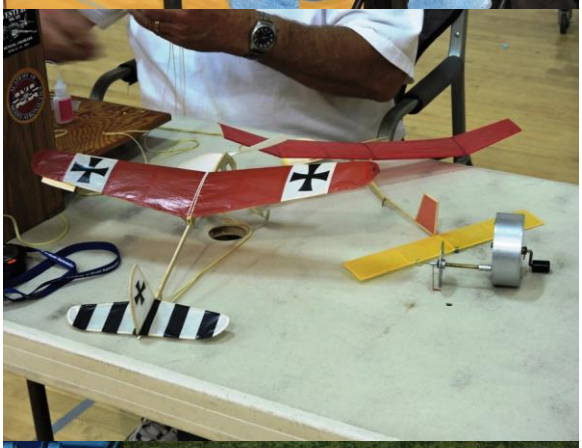
OCT. 4, 2014 INDOOR FLYING

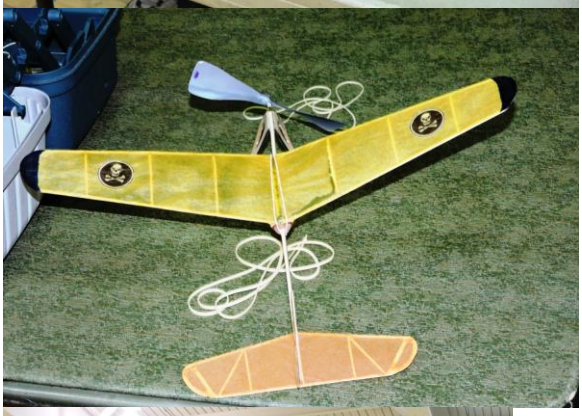
A-6 (Scored best 2 of 5 flights)

1. Greg Hutchison 376
2. John Hutchison 355
3. Richard Wood 289

Phantom Flash (Scored best 3 of 6 flights)

1. John Hutchison 233
2. Greg Hutchison 217
3. Don Bartick 207
4. Richard Wood 190
5. William Scott 69
6. Nick Panousis dnf





Photos by Arline Bartick

PROP REPAIRS - K.Gies

Dale Wilson, Thanks for showing me how to repair broken prop blades. You did this on my Lanzo Cabin years ago when the blade was broken. After you fixed it I went to place second in 4 Ounce Wakefield. The Lanzo Cabin Duplex and prop will fly again pretty soon at the upcoming SAM Champs. I had a pretty good crack in this prop and you can see where I cut three slits and inserted pieces of very thin carbon fiber sheet into the cracks and then used thin super clue. This holds and the prop would break somewhere else but here in another dumb stunt. Thanks again for the help you gave me Dale. Cheers.

2015 ORBITEER FLYING SCHEDULE

Oct 18 - **P-30**
Power & Glider
(Oct. 25TH rain date)

Oct 21/25 WESTFAC V, Buckeye Az.*
Scale Staffel FAC Scale Contest*
(3 of 3)

Oct ??/?? SW FAI Champs, Boulder City, NV*

Nov 15 - **Old Time Nostalgia Rubber**
Power & Glider
(No rain date)

Dec 13 - Coupe
Power & Glider
(No rain date)

*** Non-Club Points Event**
Otay Field Weather (619) 661-8297

2015 INDOOR FLYING SCHEDULE

Nov 1 - Penny Plane, No-Cal*

Dec 6 - Catapult Glider, Embryo*

***Non-ORBITEER Points Event**

WHY I BUILD & FLY MODEL AIRPLANES - K.Gies

What endures in this hobby of building model airplanes are the feelings about your work and creations. You would not trade your models for anybody's, not even the best models ever made because they were made by someone else.

I remember the late Joe Macay entering an old time rubber model with a one bladed folder in the Concours d'-Elegance at Muskogee. He showed it to me and as I looked at it he read my thoughts.

Joe was not a pretty builder but a person I will never forget. Joe let it all hang out and was a totally honest person. Joe said to me, "I know that it will not win but to me it is the most beautiful model in the world because I gave it my all and I am entering it for myself."

Later on he flew it for me. It was a great performer and a Jonathan Livingston Seagull moment for both of us. As we struggled to get it out of a downwind tree Joe said, "Isn't this just great."

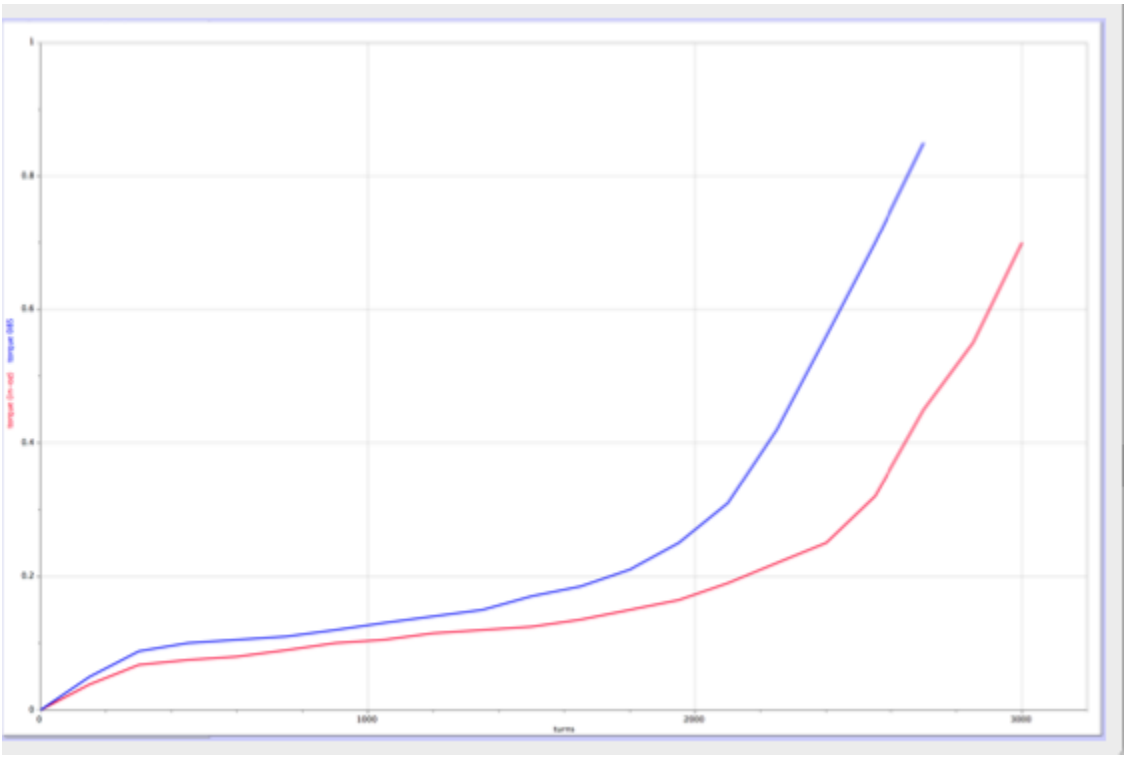
Being a builder of intermediate skills in all respects I can stare at a model and I have built over and over. This would never happen with a model that I did not build. I will admire another's model analytically trying to learn from it and be motivated by the craftsmanship. But it will never be mine at rest or in the air and my spirit will never soar with it.

Rubber Motor Torque and Torque Meters

By Mike Jester

Mathematically, torque is defined as the rate of change in angular momentum of an object. The torque exhibited by a rubber motor represents the power it generates when spinning a propeller. This torque can be thought of in terms of the angular force exerted by the wound rubber motor. In the United States, the torque of a rubber motor is typically measured in units of ounce-inches. I am sure I will be lambasted by engineers and physicist involved in our hobby for conflating and over-simplifying torque, power, and angular force, but you get the general idea. I hereby give my apologies in advance to George Mansfield, one of the smartest engineers I know.

When a rubber motor is being wound, the torque it exerts against the hook of the winder initially increases at a fairly high rate, and then increases slowly as most of the expected turns are wound in. As winding continues, the rubber motor approaches its breaking point, and the torque increases dramatically. An experienced flier can feel when his rubber motor is about to break during winding. The graph reproduced hereafter illustrates the level of torque (vertical axis) versus the number of turns (horizontal axis) comparing the performance of two different rubber motors:



Graph of torque versus turns for two different rubber motors

Before commencing the winding of a rubber motor it needs to be stretched. Stretching four to five times its relaxed length is good for outdoor flying. Stretching six

to eight times its relaxed length is good for indoor flying. Half of the expected turns should be wound into the rubber motor while it is in its stretched-out condition. The remaining turns should be slowly wound into the rubber motor while gradually stepping in. This will ensure that the maximum number of turns can be wound into the rubber motor. Reproduced hereafter is a picture of expert FAC flier Bob Hodes at Perris winding the rubber motor installed in his Hellcat. Note the significant distance between the winder and his stooge-mounted airplane.

Bob Hodes winding his Hellcat

When your model airplane is launched, there is an initial burst of power delivered by the rubber motor, assuming it has been sufficiently wound. This burst can be more than twice the power delivered during the intermediate portion of the motor run. If the burst of power is too much, your model airplane may exhibit a power stall, or worse, a dreaded roll-over and crash. The final portion of the motor run is at very low torque. I will not discuss the role of torque in the context of trimming your model airplane as this would lengthen this already long article. Just remember the admonition of the late, great Orbiteer, John Oldenkamp, which I heard him yell at the field in reference to the thrust line of an outdoor model which had just power stalled and crashed – "Down and right!"

For outdoor sport flying, it is good practice not to wind to more than 80% of the maximum torque that the rubber motor can accept before breaking. This maximum torque can be determined by test winding a motor of the desired cross section and chosen type of rubber using a winding stooge. Make sure you wear protective eye wear. WARNING: don't connect a Crockett hook before test winding a rubber motor to its

breaking point unless you have a winder with a latch coupling that securely locks the Crockett hook to the winder. I remember a Crockett hook shooting across my garage at high velocity when I test wound a large rubber motor for my Gollywock.

To conserve rubber, some fliers prefer to test wind a fractional rubber motor made of the same number and size of strands as the real motor. By way of example, a test rubber motor that is one half the desired length should break at roughly the same torque (and half the turns) as a full length rubber motor made of the same type of rubber and having the same cross-section.

Winding to 80% "max" torque can be accomplished with a tool called a torque meter. This device allows the torque to be measured during winding. By monitoring the rubber motor torque you can reduce the chances that the rubber motor of your outdoor airplane will break during this critical process. If you wind without a torque meter, you are going on blind faith. Winding a new rubber motor solely based on feel or the previous number of turns of a prior winding of a similar rubber motor may result in a higher frequency of rubber motor breakage, or in the alternative, under-winding. If you wind the rubber motor of your airplane without a torque meter to a predetermined number of turns that do not break the motor, the rubber motor may still have too much torque for your model. This excessive torque may cause your airplane to power stall and dive to the ground, or to "torque in", i.e. roll into the ground shortly after launch. In the alternative, if you wind the rubber motor without a torque meter to a predetermined number of turns, the result may be a rubber motor with less than the optimum torque for your model. In such a case, the climb, and thus the time aloft of your model, may be significantly compromised. This is true even if the rubber motor has the optimum size for that model. The optimum weight of the rubber motor depends on the type of aircraft, its prop and other factors. By way of example, my 30 inch wingspan Fairchild 24 carries a 25 gram rubber motor which is about one-third of its weight (less the rubber motor). It uses a 9 ½ inch GizmoGeezer prop assembly.

It should be intuitive that the maximum number of turns that can be wound into a rubber motor is related to the size of the rubber motor. A longer motor will take more turns than a shorter motor of the same cross-section. A thinner motor will take more turns than a thicker motor of the same length. Weight is, of course, another measure of size. Clearly, you need some logical frame of reference in terms of assessing the flight performance that a given torque of a wound rubber motor exhibits for a particular model. Some fliers, especially indoor duration fliers, prefer to measure the size of a rubber motor by length and weight instead of cross-section and weight. Legendary indoor flier Cezar Banks used to cringe when I told him the width and weight of the rubber motor being used on an indoor Science Olympiad Wright Stuff airplane. However, most rubber motors for outdoor models are typically referred to by the number of strands of commercially available rubber strip, e.g. 1/8 inch rubber, and the weight of the rubber motor, without regard to its length. A typical motor for an FAC airplane might be 6 x 1/8 inches and 13 grams. The length of outdoor rubber motors used in outdoor flying can vary significantly depending on whether the rubber motor has been braided. See my

article in last month's *El Torbellino* newsletter for a lengthy discussion of braiding rubber motors.

The energy storage capabilities of rubber vary based upon the type of rubber, e.g. Pirelli, TAN II or Tan Super Sport, and additionally, according to the batch of the same rubber. Slight variations in energy storage capabilities of rubber can also supposedly be attributed to the temperature and humidity at which the rubber is being wound. Like fine wine, rubber should be stored in a dark environment, at a steady cool temperature. The number one enemy of rubber is UV light from the sun. Just like wine, rubber that is used to power model airplanes is referred to by its vintage or "batch." For example, most indoor flying experts, such as current F1D world champion Kang Lee, probably fly in competition on 5/99 TAN II rubber, the holy grail of our hobby. I have heard from a number of reliable sources that almost any post-2008 batch of Tan Super Sport rubber has energy storage properties close to the best Tan II rubber. I prefer to fly outdoors exclusively with Tan Super Sport rubber and save my precious little supply of TAN II rubber for indoor competitions. And, before you ask, the answer is "no – I can't give you any 5/99 TAN II rubber." I don't have any, at least to my knowledge.

Charts are available on the Internet that purport to set forth the maximum number of turns per inch for rubber motors made of various numbers of strands of 1/8", 3/16" and ¼" inch rubber. However, the data in these charts are nothing more than approximations. Much more useful data is presented in a chart prepared by star FAC flier Don DeLoach. His chart sets forth Tfail, T.85 and T.75 torque values for post-2008 Tan Super Sport rubber for a wide range of outdoor rubber motor cross-sections. See the August 2014 edition of the Scale Staffel newsletter for a copy of the DeLoach torque chart. It is important to bear in mind that each successive wind of a rubber motor will soften and elongate the rubber so it will take more turns to achieve the same torque. Don't forget to lube your rubber motors and to periodically check for breaks or nicks in the individual strands. Lubing the rubber motor before winding is absolutely essential to inhibit breakage of the rubber as the strands would otherwise chafe against each other. See my article on rubber motor lubes in the June 2015 edition of the *El Torbellino* newsletter.

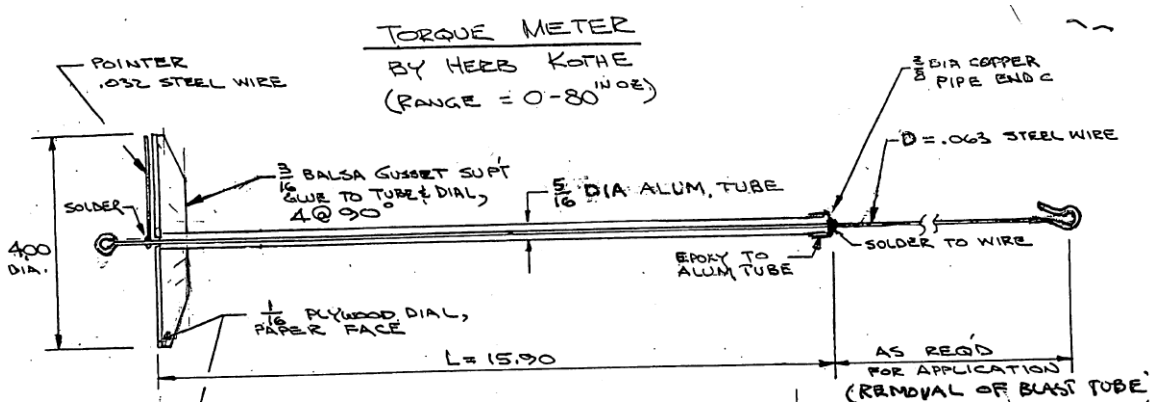
It is best to keep your own records in terms of the type of rubber, batch, number of turns, weight, length, launch torque, and make-up (e.g. cross-section or number of strands of 1/8 inch rubber) of the rubber motor that has been used for the best fights of each of your models. I made up a list of rubber motor information for my models which I try to remember to bring to every contest. I store a picture of that list on my smart phone in case I forget to bring the hard copy to the contest. Bob Hodes writes key rubber motor information for all of his models in a little spiral notebook. He refers to it regularly during FAC contests. I sure hope that Bob has a good back-up plan if he misplaces that little spiral notebook!

A torque meter is an essential tool for competitive indoor flying. The maximum altitude achieved by an indoor model directly reflects the launch torque. For all indoor models, such as Limited Penny Plane, A - 6 models and No-Cal models, the best approach is to wind the rubber motor to near breaking torque, and then to de-wind (also

known as “backing off”) to the torque that will get the airplane just below the light fixtures and beams. Backing off allows you to get 100 or more additional turns into the rubber motor for a selected launch torque. This can be the winning difference in an indoor contest. At indoor contests you often hear a rubber motors break. The person that suffered this fate is then sarcastically scolded by another flier that he should have wound one less turn. I think Cezar told me that if you are not breaking rubber motors you are not winding enough.

A torque meter is also an essential tool for competitive outdoor flying. It allows the flier to wind to a known level of torque for a given size motor that will usually avoid motor breakage while at the same time producing the desired climb pattern. Flying in outdoor contests normally does not involve backing off since there is no ceiling and the flier wishes his model to achieve the maximum altitude.

Most torque meters are home-made. Famed outdoor flier Herb Kothe has drawn up a plan for building a simple and robust torque meter that is suitable for outdoor flying. The plan for Herb’s outdoor torque meter is available at www.pensacolafreeflight.org. Click on the “articles” tab. Read down the list for the article entitled “Torque Meter by Herb Kothe” and click on the same. Here is an excerpt from that plan.

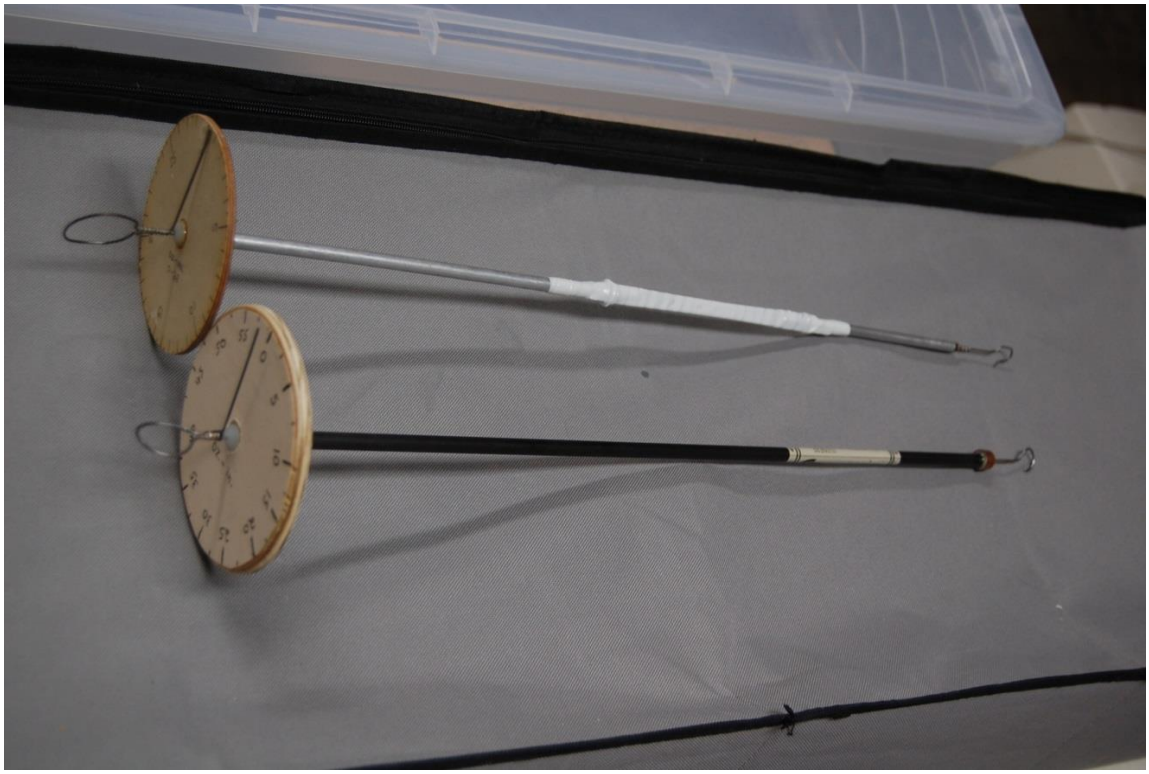


Herb Kothe Outdoor Torque Meter

Herb’s outdoor torque meter comprises a relatively long segment of steel music wire that is twisted by the rubber motor as it is being wound, usually less than one revolution. As long as the music wire is not over-twisted, it acts like a spring and can return to its original shape even after being twisted millions of times. An outdoor torque meter may use a fifteen inch segment of, for example, 0.047 inch diameter steel music wire. A hook is formed at the rear end of the long segment of music wire and a pointer in the form of a short wire segment is soldered to the forward end of the long segment of music wire. The forward end of the long segment of music wire is formed into a loop for connection to the latch coupling of an outdoor winder. The long segment of music wire is surrounded by a tube that is glued to a circular dial face at its forward end, over which the pointer rotates. A small Copper cap is glued with epoxy to the rear end of the tube. The long segment of music wire extends through a small hole in the Copper cap and is soldered to the same. The hook at the rear end of the long segment of music wire retains

the forward end of the rubber motor whose rear end is held by the motor peg. Don't forget to install a blast tube inside the fuselage of your model airplane before winding! The torque meter twirls in-line as the rubber motor is wound. The winding is periodically interrupted to stop the rotation of the dial face and allow the current torque to be read.

Set forth hereafter is a picture of a couple of my outdoor torque meters sitting side-by-side. The Aluminum tube on the top torque meter in the picture fractured and had to be repaired. The bottom torque meter in the picture uses a carbon fiber arrow shaft for the tube because it is much stronger and still relatively light in weight.



Home-made outdoor torque meters

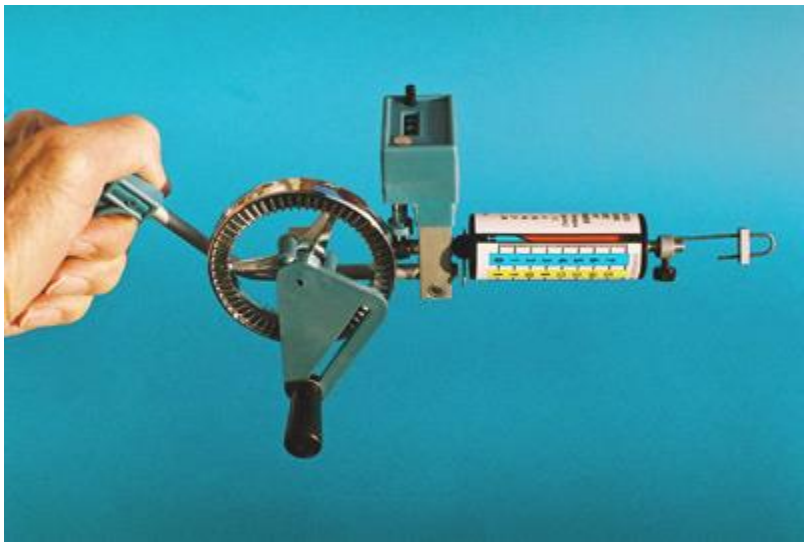
A newly constructed torque meter may be calibrated using various techniques so that the dial face can be marked with angularly spaced indicia representing different amounts of ounce-inches of torque, and fractions thereof. The bottom torque meter in the preceding picture has a range of 0 to 60 ounce-inches of torque. The upper limit of this torque meter is sufficient to accommodate virtually all outdoor rubber powered models except for the largest ones, such as F1B (Wakefield) models. However, the resolution of this outdoor torque meter is not sufficient for winding much smaller rubber motors used to power indoor models. The relative movements of the pointer would be barely perceptible to the naked eye when winding, for example, a 2 gram rubber motor made of a single loop of rubber strip having a width of .098 inches.

One simple way to calibrate a home-made torque meter involves winding a rubber motor with the newly constructed torque meter coupled in ganged fashion to an existing

torque meter known to be accurately calibrated. This is much simpler than hanging different sizes of weights on the pointer one inch from its center of rotation and noting the rotational deflections. If you are good at math, there is a twist equation for steel wire that is set forth in Herb's plan that allows you to calculate the angular deflection of the long segment of music wire. This equation can be used in determining how to accurately mark the dial face with ounce-inch indicia.

A 1:5 gear ratio winder with a mechanical counter has been commercially available from the GizmoGeezer company for many years. It can be equipped with a cylindrical torsion spring-based torque meter. A picture of the combination GizmoGeezer winder and torque meter is reproduced hereafter. Many FAC fliers prefer to use this winder and torque meter almost exclusively. However, some fliers are reluctant to use this winder because they say looks like an egg beater. A few of our local fliers prefer to use the 1:10 Rees winder that can be purchased from Volare Products for $75. An electronic counter can be purchased as an option for use with the Rees winder, but not a torque meter.

I own a GizmoGeezer winder equipped with its unique torque meter and have been very happy with it after many years of service. The proprietor of the GizmoGeezer company, Orv Olm, has indicated that a new 1:10 gear ratio GizmoGeezer winder will be on sale very soon. Presumably the new 1:10 GizmoGeezer winder will work with the cylindrical GizmoGeezer torque meter. I do not know at this time whether the new GizmoGeezer torque meter will also look like an egg beater.



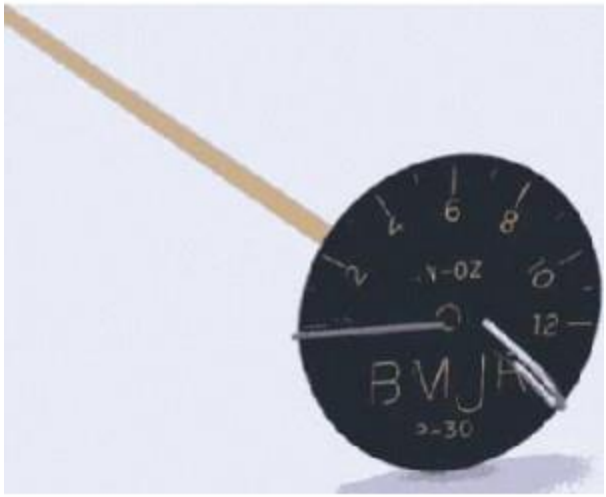
GizmoGeezer outdoor winder and torque meter

For those interested in competitive flying of F1G (Coupe d'Hiver) model aircraft, the premier winder is the Blazhevych winder sold by Starlink Flitetech Models. It has a both a counter and a torque meter. The counter is electronic and the torque meter apparently includes a torsion spring. I recently purchased one of these F1G winders from

Mike Pykelny (this is my wife's 2015 Xmas gift to me). It is really convenient not to have to couple and decouple a large separate outdoor torque meter. The "Blaz" winder allows me to avoid interrupting my winding to stop the dial face of the outdoor torque meter from twirling in line with the knotted rubber motor. A rapidly twirling outdoor in-line torque meter can produce significant oscillations and its inertia can mask the feel of the rubber as it is wound. Rubber motors for large outdoor airplanes need to be wound to considerable levels of torque, e.g. 25 ounce-inches for my Gollywock. Both of my previously pictured outdoor torque meters have suffered mechanical failures during the process of decoupling them from a wound rubber motor.

Blazhevych F1G outdoor winder and torque meter

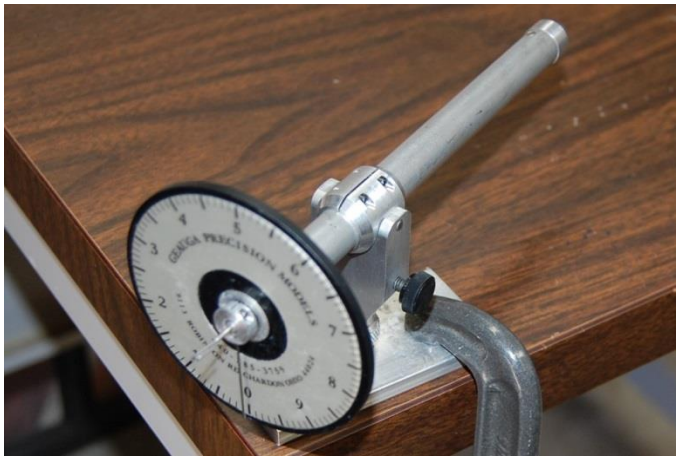
BMJR Models sells a 0 - 12 ounce-inch in-line torque meter suitable for use with P-30 and many FAC models for $22.00. Paying this low price sure beats building your own outdoor torque meter unless you are very good at soldering. I purchased one of these torque meters from BMJR Models and was pleased with its quality.



BMJR Models outdoor torque meter

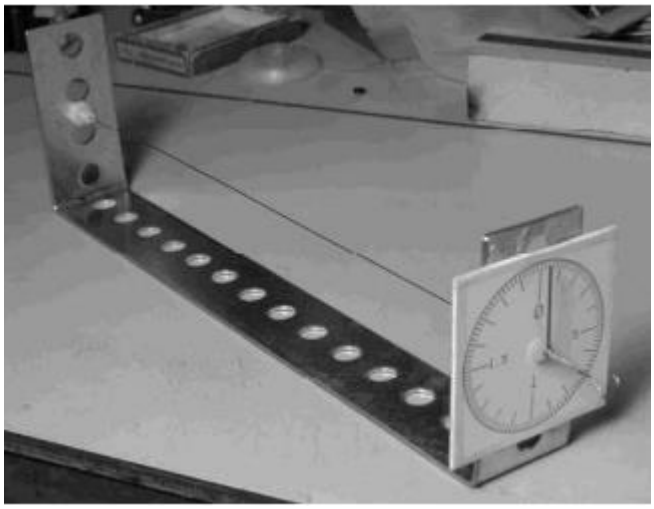
Indoor torque meters come in two varieties. One variety is electronic and used to be available for purchase from indoor world record holder Bill Gowen. He no longer sells them. Bill's electronic torque meter (not pictured) uses a rigid finger connected at one end to a shaft that is coupled to a rotationally mounted motor hook. The opposite end of the finger presses on the weighing platform of a digital scale, which reads out the torque in tiny fractions of an ounce-inch. The other variety of indoor torque meter is mechanical and is similar in construction to the much larger outdoor in-line torque meters previously described. Indoor torque meters also use a segment of music wire that is twisted to sense torque, except that the music wire is much smaller in diameter, e.g. 0.015 inches. Indoor torque meters are typically clamped to a table and the rubber motor is wound on the torque meter, off the airplane.

Set forth hereafter is a picture of the Geauga indoor torque meter that I purchased brand new almost ten years ago. I think I paid less than $100 for this beautifully designed and manufactured tool. It has been used thousands of time by me, and by many students that I have coached in the Science Olympiad Wright Stuff event. As far as I know, the Geauga company, which was located in Ohio, stopped manufacturing tools for the free flight hobby a few years ago. You might get lucky and be able to buy a Geauga torque meter on eBay. I am only aware of one indoor torque meter that is commercially available at this time. Click on "Kits and Accessories" at www.freedomflightmodels.com. The cost is $29.00.



Geauga indoor torque meter

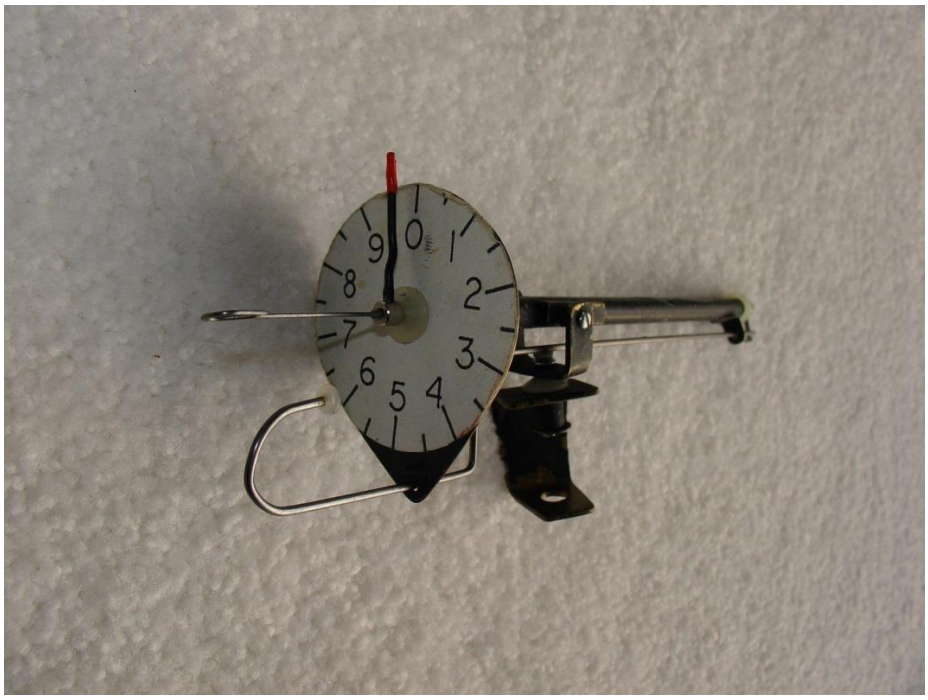
Instructions for building a simple inexpensive indoor torque meter can be found at Ray Harlan's Indoor Model Specialties web site. See www.indoorspecialties.com. A picture of the Harlan indoor torque meter is set forth hereafter. The music wire segment of the Harlan indoor torque meter is exposed. It is not necessary to calibrate the dial of a torque meter to actual ounce-inch increments. You can just use the absolute values and record them in a notebook. However, if you want to compare notes with fellow modelers, you need to calibrate your torque meter in order to have a common frame of reference, e.g. ounce-inches of torque.



Ray Harlan indoor torque meter

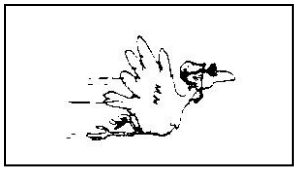
A plan for a much more sophisticated indoor torque meter designed by Cezar Banks can be found on page 8 of the January – February 2012 edition of the Scale Staffel newsletter. It has a yoke for pivotally and rotationally supporting the tube that surrounds its music wire element. It also has a manually actuated latch that facilitates removal of the wound motor from the hook of the torque meter, eliminating the need for an O-ring at

that end of the rubber motor. Here is a picture of a Cezar Banks style torque meter built and used by FAC Hall of Fame member John Hutchison.



Cezar Banks indoor torque meter

For built-up stick and tissue indoor models, like Embryos and Bostonians, it is convenient to have a small in-line torque meter that allows the rubber motor to be wound inside the fuselage with a small blast tube installed. As a practical matter, you are not going to be able to connect the rear end of a rubber motor after it has been wound on a torque meter clamped to a table to the motor peg of one of these models. Ditto for the motor hook of a Phantom Flash because of its pesky wheel struts. Here is a picture of the front end of the small torque meter I built for in-line winding of my indoor Embryo and Phantom flash models.



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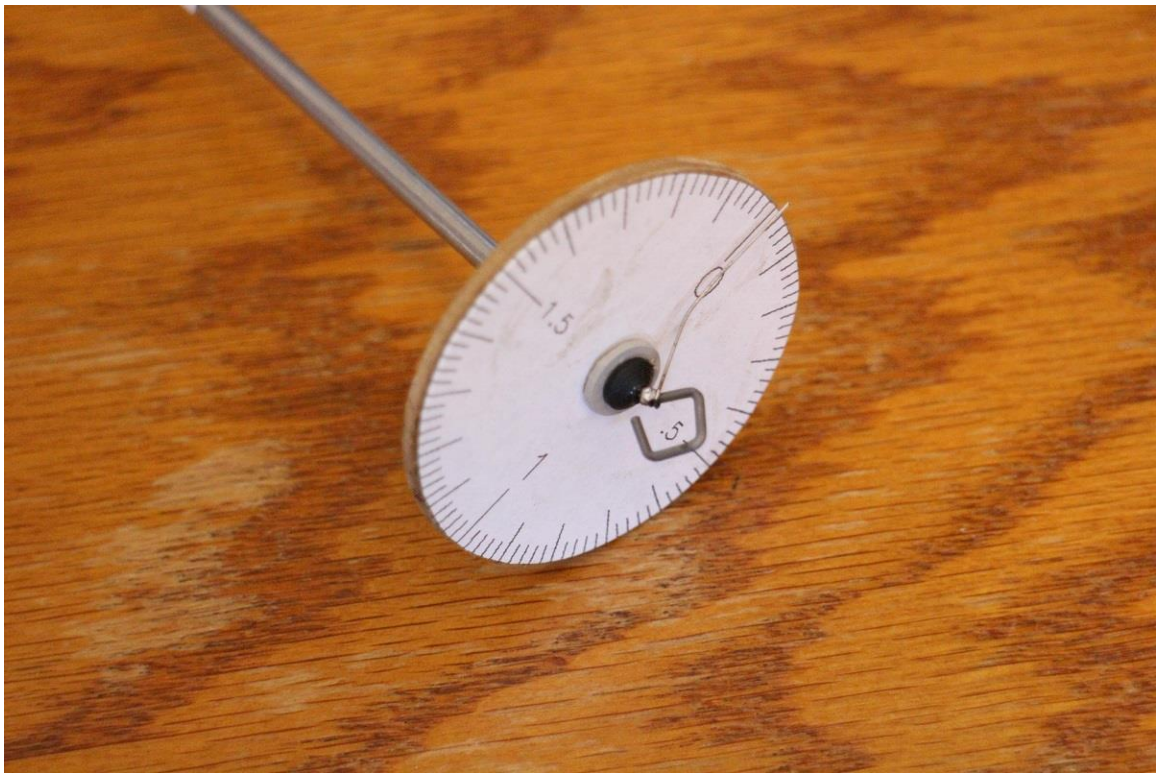

Small in-line torque meter for indoor model airplanes

In conclusion, in order to be consistently competitive in indoor and outdoor rubber powered flying events you need to have: 1) a fundamental understanding of the relationship of rubber motor torque to free flight performance; 2) a record of the optimum torque for the rubber motor best sized for each of your models; and 3) a torque meter with a range suitable for winding each of your models. When all is said and done, after proper trimming, consistently achieving good flights with your rubber powered airplane is pretty straightforward. Using your notes, wind the optimum size rubber motor to the proper torque and launch the airplane with the usual incline of the airframe. Of course it helps if you launch your model into a thermal, or if it catches a thermal later on during its flight. See my article on thermals in the July 2015 edition of the *El Torbellino* newsletter.

Since I have now completed writing this lengthy article, I can get back to finishing the build of my Jabberwock. I intend to fly this model at WESTFAC V which takes place October 21-24 in Buckeye, Arizona. This is the premier FAC contest west of the Mississippi. I hope to see members of the Orbiteers winding with torque meters at this FAC contest.

BIG ESTATE SALE
RC AIRPLANES

WHEN Saturday, October 17, 2015

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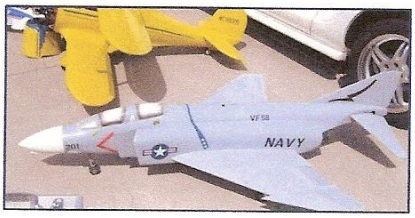

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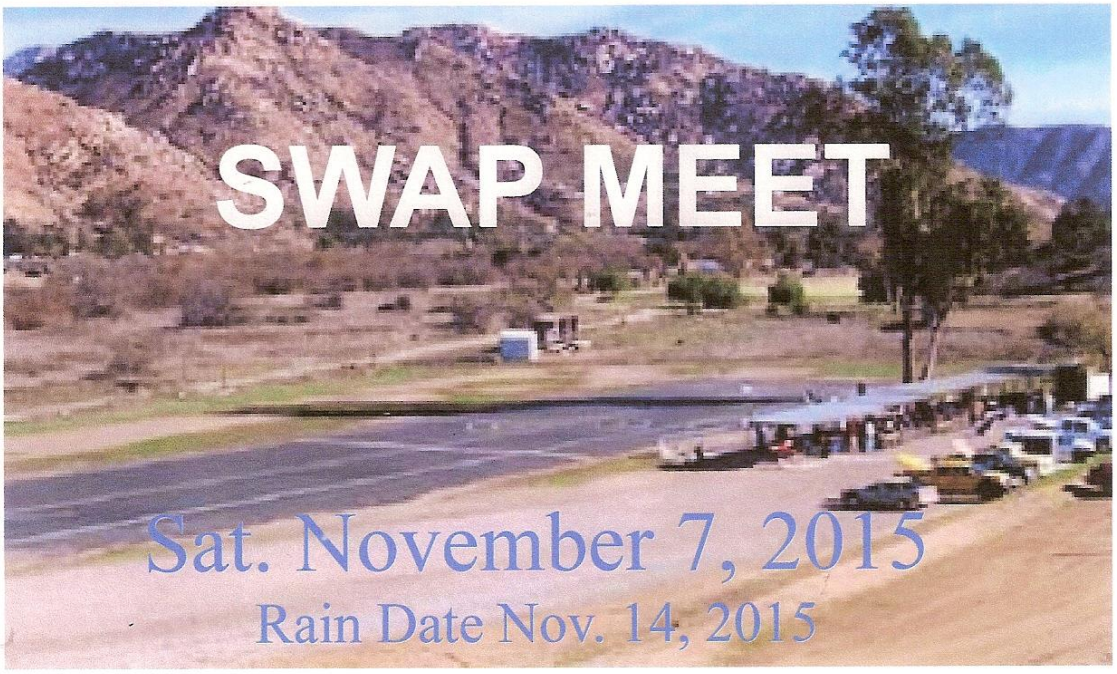
First Weedwacker Aerosquadron

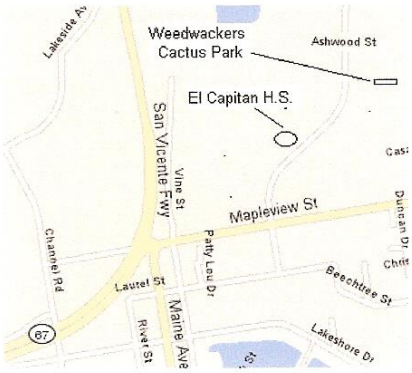
Lakeside, CA



Site: Ron Smith Memorial Field
(SD County Cactus Park, Lakeside)

Hours: 7:30 am – 11:30 am

$5 Seller's Fee ----Buyers Free Refreshments Available



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WHAT'S HAPPENING - OCTOBER / NOVEMBER 2015

Oct. 18 - **Orbiteer Outdoor Monthly,**
SCAMPS Field, Perris CA., 8:00 am.
Feature Event: **P-30** Other Events: **Power & Glider**

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Nov. 1 - **Indoor Flying**, Grossmont College (Upper Gym), 7:30 am to 11:30 am.
Feature Event: **Penny Plane,** Other Event: **No-Cal***

Nov. 15 - **Orbiteer Outdoor Monthly,**
SCAMPS Field, Perris CA., 8:00 am.
Feature Event: **Old Time Nostaigia Rubber**
Other Events: **Power & Glider**