EL TORBELLINO

NEWSLETTER OF SAN DIEGO ORBITEERS FREE FLIGHT CLUB

DECEMBER 2015

The Prez's Corner - *Don Bartick*

The holiday season is well underway as I write this article. December is busy with a variety of social activities. We had the final Board meeting for the year at the Bartick's. It was a busy meeting held after a stomach filling meal put on by Arline. The main items we debated was membership, next years' outdoor schedule, locating a new field in Otay Mesa and the Awards banquet. You'll find further discussion of these issues when you read the minutes of the Board meeting somewhere in this issue.

It was agreed that the field location committee would convene on December 14th at the corner of Otay Road and Alta Road to further investigate if there is a viable location to fly near our old location and abide by the property owner's rules to not traverse their properties with any kind of a vehicle. This means using a public road to gain access to the property. Well, using the maps that Mark Chomyn had gathered on the County Assessors website, Mark, John Merrill and I scouted around. The best available location that we could get permission to retrieve our planes was due west of our old field. The public access road was located on a steep rise above the field. Although there was a couple dirt paths going down the slope, they were far too steep to attempt in a passenger vehicle.. We did discover a road that maybe we could use starting at the far south end of the field; further investigation showed deep water puddles across the road that would require days, if not weeks to dry out. The risks were too great to further consider. Furthermore, if we could fly at this location it would be only a short time before construction of another crossing to Mexico and the development of an industrial park. After 1 ½ hours of exploring, we came to the conclusion that Otay Mesa is no longer a viable location for a flying field. We will start now to explore potential locations within San Diego County. But it appears that other locations will not improve on the driving time that is now required to go to Perris. With this thought, we will most likely have to acquiesce to continuing the drive to Perris. We have reserved the dates for next year's monthly contests at Perris. Aside from the drive, it is a great field for flying. The weather conditions overall are superior to Otay Mesa. It may become the only location available. So Orbiteers adjust your thinking to accept this location for our future. We will keep looking in San Diego County for a suitable field, but it may be a long shot. All ideas are welcomed. For some of you old timers with the club, you may recall that we conducted our monthlies in the early 90's at Perris on the west side near the railroad museum. This went on for a couple years before we located at Otay Mesa.

Now with all this said, I am now encouraging one and all to attend our Awards Banquet. It's the right thing to do. Furthermore the food, prizes and camaraderie are great. See you there.

This is a wrap for now. Happy Holidays!

Remember: "Success is liking yourself, liking what you do, and liking how you do it"

Maya Angelou

Don

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ORBITEERS MEMBERSHIP DUES

Annual Membership - $20
Lifetime Membership - $250
Non-Member Newsletter Subscription - $15
Junior Members 16 years old or younger - Free

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

Webmaster: Kathy McLaughlin

San Diego Orbiteers Board of Trustees Meeting - J.Merrill

December 9th, 2015

Held at the home of Don and Arline Bartick Ten total in attendance; including our hosts, John and Kathleen Hutchison, Mike and Dorothy Jester, Mark Chomyn, Mike Pykelny, and John and Ann Merrill.

After a wonderful chicken dinner, the meeting was called to order at 7:30 p.m.

Minutes of the previous board meeting were approved as published.
Treasurer's Report was approved as sent to the Board members.
Membership Report: nobody new since last report, but we have a few hopefuls.

Old Business:

1. Membership campaign: Mike Pykelny's wife Linda made a wonderful full-page brochure to be posted in various hobby shops. Mike has permission to leave them in a dozen places so far. A few modifications were suggested by some of us at the meeting, but overall, the flier looks very promising. Thank you Linda!
2. Search for a new flying field: As was previously published, Mark Chomyn was tasked with contacting the various owners of properties that surround our old site at Otay Mesa, in hopes we could continue to fly there on one of the nearby fields. It was reported that we have verbal permission to walk on the properties all we want, and can fly there, but they don't want any vehicles on any of the properties. The old dirt roads we used to use are no longer an option. A group of us are going down there on Monday, Dec. 14th to scope out some other options. Look for another report in next month's E.T.
3. Orbiteers/Scale Staffel annual awards banquet: Mark has also secured the same restaurant we have used for the last several years, Giovanni's on Clairemont Mesa Blvd. The banquet will be held on January 30th from 1-4p.m. A motion was made by Mike Jester and seconded by Mike Pykelny to have the Orbiteers supply $100.00 to buy prizes for the banquet. The motion passed unanimously. Mark Chomyn was volunteered to buy the prizes.
4. Recommendations for 1 additional board member: none made. Anyone wish to volunteer?

New Business:

1. Set final schedule for next year's monthly contests: the dates were discussed, and set based on a combination of this year's dates, and that of the master calendar of other club's major contests. January's contest will be Sunday the 24th, with a rain date of the 31st. A full schedule may appear elsewhere in this newsletter, otherwise it will be presented in full in next month's edition.
2. Schedule the next board meeting: March 16th at John and Ann Merrill's house. The following meetings will be at the Jester's in June, the Hutchison's in September, and at the Chomyn's in December.

Contest Reports: Mike Pykelny said the 2 day contest in Boulder Colorado was a good one, with good attendance of 25 flyers. The contest was held the weekend before Halloween. Mike Jester said the last indoor contest at Grossmont gym was good. He also thanked John Hutchison for securing the use of the gym for the next 6 months.

Open Discussion: it has been announced that Roger Willis will be stepping down as the head guru of WestFAC. He has been spearheading the big contest since its inception many years ago, and now wants someone else to take over. If you wish to take on the job, or know of someone that may wish to do so, please let him know, or contact anyone on the WestFAC working committee.

Good of the Order: John Merrill announced that this January 1st, his sister is taking her Mira Mesa High School band to Pasadena, CA to play in the Rose Parade. This will be the only high school band to represent all of southern California. His sister is the Music Director for the high school.

Adjournment: call for adjournment came at 9:08p.m.
Note: thanks again to our gracious hosts Don and Arline Bartick for an excellent dinner!

Scale Staffel & Orbitter's

Annual Luncheon and Auction

Who: Orbiteer and Scale Staffel

What: Annual end of the year luncheon and auction When: Saturday, January 30, 2016 at 1 p.m.

Where: Giovanni's Restaurant 9353 Clairemont Mesa Blvd Cost: $15 (Stolen from Scale Staffel NL - W.Scott / Editor)

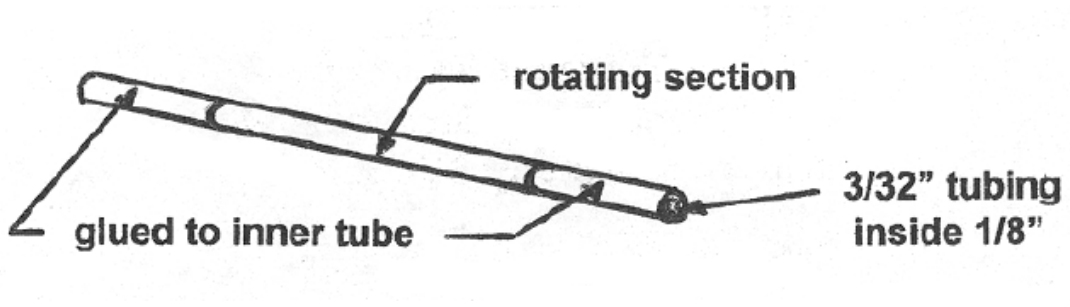
Wobbly Motor Pegs

By Mike Jester

My article in the September 2015 edition of this newsletter explained how braiding rubber motors can help avoid shifting of the CG of your model near the end of a motor run, and a resulting stall. I have since learned that it is better if the two groups of loops are each wound in a counter-clockwise direction before being joined together. Another technique can be used alone, or in conjunction with braiding, to address the same CG shifting problem when using longer rubber motors. It has become known as the wobbly motor peg or the rotating motor peg. Use of a wobbly motor peg can supposedly allow use of a rubber motor in a scale model that is about 4 to 5 times the hook to motor peg length. For duration models, like Old Time Rubber Stick models, you might be able to use a rubber motor that is about 2 times the hook to motor peg length using a wobbly motor peg. Of course you can't just keep adding rubber to increase the length of the motor run as there is a tradeoff between the total amount of energy that can be stored versus the weight the model has to carry throughout the flight. Generally, you don't want the weight of the rubber motor to be much more than about 40% of the weight of the air frame (excluding rubber). Of course the optimum rubber motor weight depends on the type of model, e.g. scale versus duration, and there are always exceptions. Apparently some very large open class models can have a rubber motor that weighs close to 100% of the weight of the air frame (again excluding rubber).

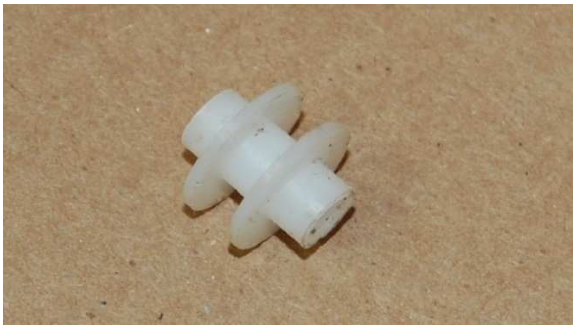
George White summed up the problem pretty well in his article entitled *Taming the Rear Motor Peg* in which he stated: "As the motor unwinds it wants to squirm about and flex up and down at the rear peg. The use of a solid peg interferes with that and the motor has a gathering at the tail." A wobbly motor peg is essentially an outer motor peg that rotates around a fixed inner motor peg. Tom Arnold explained how the wobbly motor peg works in his article entitled *An Article About Very Long Rubber Motors* in which he stated: "The explanation of how it works . . . is that by allowing the motor to shift, roll, and twist at the peg as it unwinds it prevents that big knot from forming around the peg. For some reason it works itself out of a jam and lets the full winds come out. Now you still have a long sloppy motor to slide back and forth but you have gotten every turn out of it you could before then."

Here is an illustration of one implementation of the wobbly motor peg from an article by Mike Nassise entitled *Peavey Rotating Motor Peg:*



Others prefer to use a bobbin consisting of a tube with circular end plates that rotates very loosely around a fixed motor peg. The outer tube should be "at least two sizes larger than the motor peg" according to George White. Set forth hereafter is a picture of a homemade bobbin that can serve as a wobbly motor peg. It comprises a ¾" segment of 7/32" OD Aluminum tube with 9/16" diameter plywood discs glued to each end. The weight of this bobbin is 0.48 grams.

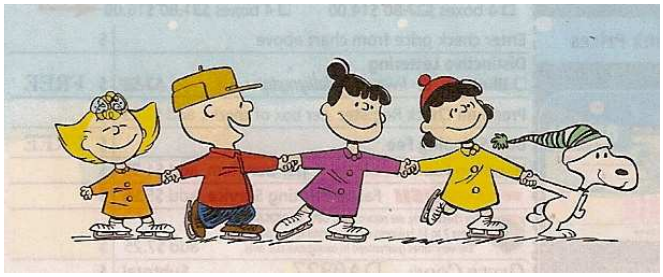
Pictured immediately hereafter is the Nylon plastic “rear bobbin” that was included with a free-wheeling clutch assembly intended for a P-30 model. I purchased this clutch assembly from Jim Sprenger, the proprietor of Zephyr Compressed Air Motors. Apparently that company is no longer in business as I made many unsuccessful efforts to contact it. This molded plastic bobbin has an axial length of 7/16” and an OD of ½”. It weighs 0.56 grams. The written product information provided by Jim about this component states: “Provides tube-in-a-tube rear motor anchor to help prevent motor bunching in the rear. Fences keep motor centered in the model to minimize motor rubbing on the sides." I have to believe that this plastic bobbin is still commercially available. Jim’s company couldn’t have afforded to invest in the tooling to mold this bobbin. I performed a quick GOOGLE search and could not locate any current suppliers.



Tom Arnold prefers to flare the ends of the wobbly peg rather than affix circular end plates. Reproduced hereafter is a picture of a wobbly motor peg that I made by flaring the ends of a 1” x 0.25” OD Aluminum tube segment. It fits loosely around a 2” x 3/16” OD Aluminum motor peg that I use in my Gollywock and Jabberwock. This wobbly motor peg weighs 0.45 grams. I flared the ends of the segment of 0.25” Aluminum tubing by inserting the tapered ends of pair of short-length Phillips head screw drivers in the opposite ends of the tubing and then pushing and twisting the screwdrivers. The amount of flare may not be adequate to keep the rubber motor from sliding off one or both ends of this wobbly motor peg. Over time I wonder if the sharp edges of the flared ends will cut through the 1/64” plywood reinforcements glued on the inside of the fuselage around the motor peg holes.

Several more points are worth noting if you are thinking about using a wobbly motor peg in one of your models. First, keep the area around the motor peg large and clear of obstructions to prevent knots from hanging up. Second, you may have to build a special stuffer stick to hold the rubber motor and bobbin combination. Third be careful of adding weight to the tail. I remember that my Gollywock was flying beautifully. I decided to insert the homemade 0.48 gram bobbin pictured above in the rear of the motor to make it easier to get the motor peg through the eight loops of the rubber motor. I wasn't trying to prevent motor bunching as it was not a problem with this model. The extra weight in the tail caused my Gollywock to have a stall in the glide. I quit using the bobbin on this model. The stall in the glide went away. The Gollywock has a relatively long moment arm.

I plan to experiment with wobbly motor pegs when the circumstances dictate that they may prevent problems due to bunching of the rubber motor.



DECEMBER OUTDOOR MONTHLY

(December 13, 2015)

COUPE	TIME	POINTS	PRIZE
Greg Hutchsion	360	6	$11
Clint Brooks*	324	0	$8
Mark Chomyn	262	4	$5
Mike Jester	240	3	
Bill Ervin*	232	0	
Mike Pykelny	221	2	
John Hutchison	221	1	
Bill Holt*	DNF		

POWER	TIME	POINTS	PRIZE
Ralph Ray*	360	0	$4
Stan Buddenbohm*	358	0	$3
Clint Brooks*	336	0	$1
Mike Pykelny	186	2	

GLIDER	TIME	POINTS	PRIZE
Stan Buddenbohm*	360	0	$7
Ralph Ray*	234	0	$4
Greg Hutchison	142	4	$3
Bill Ervin*	75	0	
Bill Holt*	69	0	
Mark Chomyn	65	2	
Mike Jester	35	1	

*Indicates non-Orbiteer

2015 INDOOR FLYING SCHEDULE

Jan 3 - A-6, Phantom Flash*

Feb 7 - Penny Plane, No-Cal*

Mar 6 - Catapult Glider, Embryo*

Apr 3 - A-6, Phantom Flash*

May 1 - Penny Plane, No-Cal*

June 5 - Catapult Glider, Embryo*

July 3 - A-6, Phantom Flash*

Aug 7 - Penny Plane, No-Cal*

***Non-ORBITEER Points Event**

December 6, 2015

CD: William Scott

CD: William Scott

Event: Catapult Launch Glider (6 entries)

CONTESTANT'S FULL NAME	Airplane	FLIGHT TIMES (Best two of nine)									TOTAL	PLACE
		1	2	3	4	5	6	7	8	9		
Stan Buddembohm		29.0	29.0	29.4	31.3	25.6	25.1	23.0	3.4	2.0	60.7	1
Greg Hutchison		23.0	21.3	17.1	17.8	21.5	18.8	22.5	19.3	24.6	50.7	2
Richard Wood		17.1	13.5	15.3	21.5	4.7	20.9	13.9	16.2		47.1	3
John Hutchison		20.7	11.2	23.5	22.3	20.4	3.7	20.1	12.3	22.6	45.8	4
Don Bartick		15.1	16.1	22.0	20.1	16.1	17.1	16.7	16.2	11.0	44.6	5
Mike Jester		16.0	16.8	14.8	17.6						34.7	6

Fegus High School and
Lewistown Middle School
Science Olympiad Flight Event Teams
By K.Gies

For the picture below, on the left is Sam Fulbright an eighth grader on the middle school team, center his brother Greg Fulbright on the high school team and on the right is Isiah Kolar, (9^{TH} grader) freshman on the MTS. These are all kits from Freedom Flight Models designed and kitted by Dave Zeigler. The middle school team is flying catapult gliders and the high school team a rubber powered model. These are superb kits throughout with excellent instructions. Montana is the only state that has the state contest before 2016. We have only had three weeks to build and test the models. The team is now on the bus to Bozeman, Montana, home of Montana State University and the flight contest will be held in the university field house which is much larger than the Fergus High School gym in the picture. The contest starts tomorrow and the SO team will return late in the day. The team has the models flying pretty good and they should do quite well in the contest. I will post the results when I get them. Enough cannot be said about these kids as they are real outstanding young men. Cheers, Karl Gies, Science Olympiad flight event coach.

2016 Orbiteers Outdoor Contest Schedule

Jan 24 – P-30 (Rain date Jan 31)

Feb 28 – OT/Nostalgia Rubber (No Rain date)

Mar 20 – Coupe (No rain date)

Apr 17 – P-30 Memorial (Rain date Apr 24)

May – No Contest

June 12 – Coupe (Rain date Jun 26)

July 4 – Mooney

July 17 – P-30 (Rain date July 24)

Aug 14 – OT/Nostalgia Rubber
(Rain date Aug 21)

Sept 11 – Coupe (Rain date Sept 18)

Oct 16 – P-30 (Rain date Oct 23)

Nov 20 – OT/Nostalgia (No rain date)

Dec 11- Coupe (Rain date Dec 18)

SPINOFF

Spinoff is NASA's annual publication featuring successfully commercialized NASA technology. This commercialization has contributed to the development of products and services in the fields of health and medicine, consumer goods, transportation, public safety, computer technology, and environmental resources.

Supercritical Wing Design Cuts Billions in Fuel Costs

NASA-developed wing design is used worldwide by commercial airlines.

Langley Research Center aeronautics engineer Richard T. Whitcomb was 34 when he did something no other single person could do. Whitcomb overcame the aviation challenge of the day — the so-called sound barrier. However, he was still working to improve flight efficiency at speeds approaching that barrier, now with a seemingly counterintuitive wing design, almost the inverse of what were then conventional wings. He called it the "supercritical" airfoil.

Now known as the "area rule," this is the idea that a fuselage that tapers where the wings are attached can pass the speed of sound more easily than the traditional bullet shape. In the early 1960s, after several years of work designing a Mach 2-rated jet, he became frustrated and returned to the more familiar field of transonics — speeds at or around the speed of sound.

As an object moves through air, it collides with the air molecules, creating a disturbance that propagates away from the object by means of weak pressure waves; essentially sound waves. As the object moves faster, approaching the speed of sound, these disturbances that travel at the speed of sound cannot work their way forward, and instead coalesce to form a shock wave. That shock wave tends to stand on the aircraft's wing, creating drag as the air has to flow over it. This is the sound barrier that aeronautical engineers had struggled to breach. Flying near the speed of sound remained highly inefficient because of the drag caused by these standing shock waves.

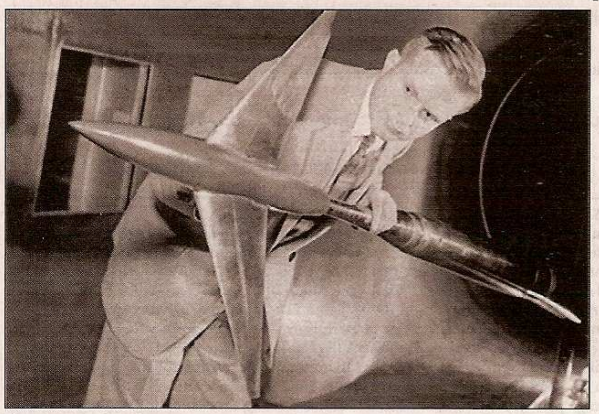
Whitcomb's first insight into a possible supercritical wing design came when observing an airfoil meant for a vertical-takeoff jet. Air passages between the wing and its flaps appeared to delay the formation of the troublesome shock wave, but Whitcomb decided this slotted design ultimately wouldn't work. With this curtailed shock wave in mind, he returned to the wind tunnel. He used auto body putty to add bulk to some areas while filing away others, testing and re-testing his models in Langley's high-speed wind tunnel.

The initial design for a supercritical wing was produced in 1964, and Whitcomb and his colleagues spent the next five years working through different models and concepts. What they ended up with almost looked upside-down compared with standard wings of the day, because it was nearly flat on top and rounded on the bottom. It was also thicker than the norm, especially on its blunt leading edge. Most commercial companies decided that, rather than use the new wing design to achieve transonic cruising speeds, they would use it to save fuel while continuing to cruise at around Mach 0.8. The Boeing 787, for example, was originally planned to cruise at Mach 0.9, but the company decided to drop that to Mach .85 and take a 20 percent fuel savings over its other two dominant twin-engine models. It had turned out that the wings were more efficient at subsonic speeds as well.

Because a thicker wing forms a sturdier attachment to the fuselage, it requires less reinforcing structure. The resulting weight savings allows more weight to be spent on either widening wingspan or reducing wing sweep, and a wider span brings greater fuel efficiency. Today, supercritical wings are used in commercial, business, and military aircraft all over the world, including all Boeing commercial and military transports.

In the 1970s, Whitcomb was inspired by an article on birds to refine what he called "winglets" — the small, vertical wings now seen on the ends of nearly all airliner wings. This innovation saves airlines 4 to 6 percent in fuel, with comparable reductions in emissions.

Visit ***http://spinoff.nasa.gov/Spinoff2015/t_2.html.***



The supercritical wing was one of three major contributions Richard Whitcomb made to aeronautics.

NASA-developed supercritical wings save the airline industry billions of dollars' worth of fuel every year, which also means significant reductions to greenhouse gas emissions.

SAN DIEGO ORBITEERS
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WHAT'S HAPPENING - DECEMBER 2015 / JANUARY 2016

Jan. 3 - **Indoor Flying**, Grossmont College (Upper Gym), 7:30 am to 11:30 am.
Feature Event: **A-6,** Other Event: **Phantom Flash***

Jan. 24 - **Orbiteer Outdoor Monthly,**
SCAMPS Field, Perris CA., 8:00 am.
Feature Event: **P-30** Other Events: **Power & Glider**
(Rain date if needed is January 31ST)

Jan. 30 - Scale Staffel & Orbiteer's Annual Luncheon and Auction, 1:00 pm.
Giovannis's Restaurant, 9453 Clairemont Mesa Blvd.
All you can eat Italian spread for $15.