

Sam Says



November 2013

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TOYS FOR TOTS

The annual SAM Toys for Tots event is coming up being held on December 7, 2013 at the model field. As usual we are asking anybody coming to the field that day to bring two **unwrapped** toys, one for a boy and one for a girl. We hope many more of you than usual show up that day for this very worthwhile event. All the toys we collect are distributed by the Monterey County Rural Fire Station located in Chualar—and all the toys are distributed in Chualar.

Have you ever wondered how and why Toys for Tots got started? I think you will find the following interesting!

Toys for Tots began as a Los Angeles charitable effort in 1947. William Hendricks was inspired by his wife Diane when she tried to donate a homemade Raggedy Ann doll to a needy child but could find no organization to do so. At her suggestion William gathered a group of local Marine reservists, including Lieutenant Colonel John Hampton, who coordinated and collected some 5,000 toys for local children that year from collection bins placed outside of Warner Bros. movie theaters. Their efforts were so successful that, in 1948, Toys for Tots was launched as a national campaign. Hendricks used his position as director of Public Relations for Warner Brothers Studio to enlist celebrity support, as well as have Walt Disney Studios design the red toy train logo.

Until 1979, Marine reservists (frequently in their dress blue uniforms) and volunteers would collect and refurbish used toys. In 1980, only new toys were accepted, as reservists were no longer able to dedicate drill hours to refurbish toys, as well as legal concerns and the mixed message of giving hand-me-downs as a message of hope.

In 1991, the Secretary of Defense authorized the creation and affiliation with the non-profit charity foundation. In 1995, the Secretary of Defense approved Toys for Tots as an official mission of the Marine Corps Reserve.

Noting in 1996 that many communities did not have a Marine reservist presence, the commander of Marine Forces Reserve authorized Marine Corps League detachments and other local organizations to fill the gaps in toy collection and distribution.

As of 2009, the Toys for Tots Program and Foundation have collected and distributed almost five hundred million toys. (Source—Wikipedia)

So now you know how the charity we support at Christmas got started. Leave it to those Marines! Since the fire department at Chualar has supported SAM and our activities, we found it fitting to support the town of Chualar with our contributions. If you are led to bring more than two gifts, they would be graciously accepted and I'm sure greatly appreciated. Please be generous.

Aero 101 – Aspect Ratio Effects

By Alan Brown

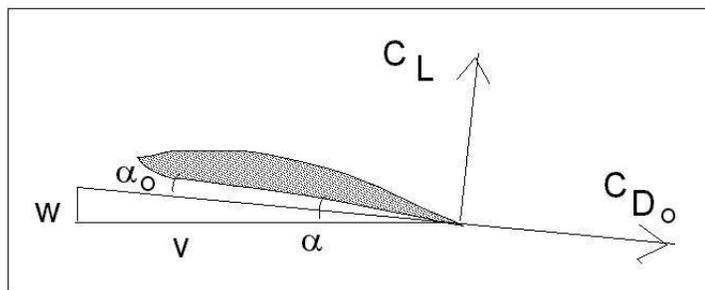
Firstly, let's define aspect ratio. It is the ratio of the wing span to the average chord of the wing. For an untapered or straight tapered wing that's fairly straightforward, but for other plan forms, it gets a bit more difficult. Fortunately, we can do a small manipulation by multiplying top and bottom of this ratio by the wing span (again)! To give us

$$\text{aspect ratio} = \text{span}^2 / \text{wing area.}$$

This will be good for any plan form.

Secondly, let's agree that we're not discussing extremely low aspect ratio like on a F-117A stealth fighter. When you get to that geometry, the simple assumption of the so-called horseshoe vortex (in plan view) goes out of the window. We'll also confine the arithmetic to an elliptical planform with constant geometric angle of incidence. This is not limiting. It just makes it simpler. Any other common planform will work similarly, but the mathematics is a little more complicated.

The effect of the vortex pattern coming off the trailing edge of the wing is to reduce the effective angle of attack, which in turn rotates the directions of lift and drag backward as shown in the next figure.



The vertical induced velocity, w , reduces the angle of attack from a to a_0 and tips the lift vector backwards by the difference of the two angles. This vector now has an extra component in the drag direction in addition to the basic profile drag of the airfoil. Without going into any details, the value of the new equivalent angle of attack is given by

$$a_0 = a - C_L / p \cdot AR$$

where AR is the aspect ratio.

A little more transposition shows that the ratio of the two angles for a given C_L is given by

$$a / a_0 = 1 + 2 / AR$$

Loud cries of "So what!" from the audience at this

point. Well, the point is that the stall angle increases according to this simple formula, but the lift coefficient and therefore the stall speed don't change. For example, a 2-dimensional wing (infinite aspect ratio) might stall at 15 degrees. The same airfoil on a wing of aspect ratio 6 will stall at 20 degrees, while if the aspect ratio were reduced to 2 (something like an extreme Profile Hots 3D airplane), the stall angle would be 30 degrees. The stall for this latter case would be apparently gentler because the whole lift curve is stretched out sideways by a factor of two. Think about the Concorde, which lands at about 35 degrees angle of attack.

Now what about the extra drag term? Is it really worth concerning ourselves about it? Well, the profile drag for a wing alone might be about 1/30 of the lift. An L/D of 30 for an infinite wing is quite attainable. The so-called induced drag caused by the lift term bending backwards is approximately equal to the lift times the angle in radians or

$$C_{Di} = C_L^2 / p \cdot AR$$

The reason for the lift coefficient coming in as a squared term is that as we increase the angle of attack of the wing, the lift term increases linearly, and at the same time it gets tilted back in a linear fashion. Thus the induced drag, which goes up with both lift and back tilt, rises as the square of the lift coefficient.

Let's calculate the wing lift/drag ratio near the stall, (which is also near the landing speed), for different aspect ratios. This will not include the drag of the rest of the airplane. I'm going to assume a stall lift coefficient of about 1.4, which is reasonable for a lot of our aircraft. We'll divide the lift by the sum of the fixed profile drag and the induced drag to get the overall lift/drag (L/D) ratio.

AR:	Infinite	15	10	6	4	2
L/D	30	15.9	12.8	9.3	6.9	3.9

If we increase the speed by about 40%, then we only need half the lift coefficient, which in terms of L/D is the same as doubling the aspect ratio. So the new values of lift/drag ratio for the higher speeds will be as follows at the same aspect ratios as above:

L/D	30	20.8	18	14.2	11.2	6.9
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(Continued On page 3)

NOTE: to better understand this article, pair it with Alan's November article titled "TAPER RATIO EFFECTS."

Gotta Go Fly

Up out of bed before the sun,
drain my lizard, getting ready for fun.
I pop in some toast and slug down some joe,
go to the garage gotta pack some stuff and go.
Checking the list, airplane, flight box and fuel,
transmitter, battery, and not to forget my new
prop wrench tool.
Load it all in the car, I'm feeling real spry,
I'm heading for the field, I gotta go fly.

Put in some fuel and make that plug glow,
flipping the prop with a whack and a throw,
doing my best to make this damn thing go.
I fuss and I fume and I'm feeling real sore,
cussing up a storm like a bar room whore.
Then all at once there is spit and a sputt, and a
finally a whirr,
this sweet little engine is beginning to purr.
I spring to my feet and give the sticks a wiggle,
I'm starting to smile, maybe even a giggle.
I shout to the crowd "I'm taking off"
as I bounce down the runway with a hack and a
cough.

I zoom into the air as if I were a bird,
and from the crowd not nary a word.
Just an aaah, and an ooh as I climb and I dive.
Oh, how great it is to be alive.
Now it's time to land, so I throttle on down,
Oops, "I'm a little high," better go around.
With a bounce and a hop and great big smile,
"that's the best landing I've done in a while."
It's been a great day but the sun's getting low,
I'm putting it all away it's time to go.

Now I'm home and got some burgers to fry,
can't wait till next weekend so I again can go fly.

Propwash McDirth

When filling out your renewal application, PLEASE fill it out completely and print legibly. It is very helpful to have all the information and also to be able to read it. Please don't assume just because you have filled out an application previously it is not necessary to do it completely.

CHRISTMAS DINNER SPEAKER

The speaker for our Christmas dinner has changed. Sean Tucker had to cancel due to unforeseen circumstances. However there is an equally good program in store for you. Lt. Brad Penley will be our speaker. Lt. Penley is an Explosive Ordnance Disposal (EOD) Officer currently studying Defense Analysis at the Naval Postgraduate School. He is a graduate of the US Naval Academy. He has been through Navy Dive School, Explosive Ordnance Disposal School, Army Airborne training, tactical training, and parachute freefall training. He conducted two deployments to Afghanistan and was followed by a civilian film crew on his deployment to Faryab Province where his combat actions were depicted on the G4 TV network show *Bomb Patrol Afghanistan*. After completing three tours Lt. Penley was the Operations Officer at Mobile Unit Twelve where he was directly in charge of 11 EOD platoons operating worldwide, and three EOD shore detachments operating stateside. He has many distinguished medals to his credit. Come hear his incredible story. It is spellbinding!

AERO 101 (continued)

So it becomes pretty clear why low aspect ratio aircraft drop like a stone at approach speeds. Remember, the real lift/drag ratios will be worse than illustrated because we didn't include the drag of the rest of the airplane. This is only for the wing! Remember also that the tangent of the glide angle is one over the L/D ratio. So our aspect ratio 2 airplane is dead-sticking at a 14.4 degree descending glide angle while its angle of attack is 30 degrees to its flight direction or 15.6 degrees to the horizontal. And that's if the rest of the plane has no drag! A sailplane with a 15 : 1 aspect ratio under the same conditions would have a glide angle of 3.6 degrees, but its angle of attack to the horizontal would be 13.4 degrees. So when an airplane is landing dead-stick, its attitude relative to the ground isn't affected much by aspect ratio, but its sink rate is affected dramatically. And that, in a nutshell, is how aspect ratio affects our airplanes' flight patterns.

Note: Alan Brown will be speaking at the January Meeting (January 8, 2014) concerning the subject matter in the November and December newsletters.

Board Meeting Minutes

November 4, 2013

Meeting was called to order at 7:00 PM by President Chris Meharg. Board meeting minutes for 09-30-2013 were read and it was moved by Dennis Stanley and seconded by Gary Mallett to approve the minutes as read. Motion carried.

Treasures Report was submitted by Treasurer Bob McGregor;

Membership is at 96.

Old Business:

Runway is finished.

The nominating committee chairman submitted the following names for elections: President—Dennis Stanley, Vice President—Pat O’Keefe, Secretary—Gary Mallett, Treasurer—Bob McGregor, Board of governors—Randy Bonetti and Malcolm Beety. Nominations will be finalized at the general meeting Wednesday November 6, 2013.

Pat O’Keefe would like to get a small windsock installed on the fishing pole. Bob McGregor and Gary Mallett will take charge and get the windsock installed. Board members discussed keeping the pilot checkout procedures in place. Bob will bring training forms to the field for usage.

New Business:

Chris Meharg moved to amend FLYING OPERATION GUIDELINES, sub part IN FLIGHT, first bullet , for flying behind the food shack toward the river to read as follows: “Never fly over the pit area, toward the pit area, over the sun shelter, parking or picnic areas. Never fly behind the pit/shelter/parking/picnic areas (Exception – gliders, electric powered gliders or electric powered quadcopters, all non-aerobatic.” Pat O’Keefe seconded the motion and it carried unanimously.

The board discussed the Christmas party and the white elephant gift exchange will be dropped this year. In place of the gift exchange Chris Meharg brought forth a motion to have a drawing and Dennis Stanley seconded, and the motion carried unanimously. Chris Meharg brought forth a motion to have a buffet dinner this year. The motion was seconded by Bob McGregor and carried unanimously.

The calendar for 2014 was discussed. It will be finalized at the December board meeting.

December 2nd will be the next board meeting

Board Meeting was adjourned at 8.26 PM.

Respectfully submitted; Gary Mallett, Secretary

Chuck Bosso was kind enough to put on a demonstration at the November general meeting on how to fiber glass using polyester resin. Chuck gave a lot of tips and credited the late Bob Francis for many of his methods and ideas. Items like this are welcome at the general meeting. If you have building tips, methods or items to showcase, please let us know

so we can schedule you at the meeting.



Gary Mallett also brought his made over Alpha 60 that he covered with Ceconite light and dope. Nice job, Gary. Looks great. Will it fly??



Calendar of Events

November:

28 Have a thankful Thanksgiving Day

December:

2 Board Meeting 7:00 PM

7 Annual Meeting and Christmas

Dinner with Special Guest

Sean D. Tucker. Don't miss it!

6:00 PM Social Hour

RESERVATIONS DUE BY NOV 29

7:00 PM Dinner is served

25 MERRY CHRISTMAS

January:

1 HAPPY NEW YEAR!

6 Board Meeting—location TBD

8 General Meeting—Landing Zone

7:00 PM (Dinner at 5:45 PM)

Notes: Board meetings are open to any member wishing to attend.

Everybody is invited to dinner at the Landing zone before the general meetings at 5:30 PM or so. Come and support James and Helen, who so graciously host us every month, and join in the fellowship and hangar flying.

DON'T FORGET TO RENEW YOUR AMA MEMBERSHIP. IT'S REQUIRED TO GET YOUR 2014 CLUB CARD AND TO HAVE FLYING PRIVELEGES AT THE FIELD.

Club Contact Information

2013 SAM Officers

Chris Meharg, President

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Dennis Stanley, Vice President

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Gary Mallett, Secretary

(831) 757-1940 gmallett@redshift.com

Bob McGregor, Treasurer

(831) 595-3681 pilotwon@redshift.com

2013 SAM Board of Governors:

Randy Bonetti, Board

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Pat O'Keefe, Board

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One Vacancy due to resignation

Others:

To send any submissions to the newsletter editor:

newsletter@salinasareamodelers.org

Pat has another email address for people assisting him with pictures or for anybody that has a picture they would like to submit for the newsletter:

samphotos4newsletter@gmail.com

Submissions for the newsletter of any kind (this includes opinions) are welcome and will be used on a space available basis. The newsletter editor retains editorial rights to any submission solely for the purpose or correcting spelling, grammar, etc., but not to alter the intent.

R/C SUBTERFUGES by Crazy Ivan

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RUDDER, THE NEXT DIMENSION

Many maneuvers can be performed without utilizing rudder, loops, rolls, inverted flight etc... but adding rudder adds an entire dimension to possible maneuvers. Yes it's difficult and we tend to allow difficult things to create mental blocks but all can be simplified to a reasonable extent. The question always is, which way do I move the rudder and how can I possibly remember which way in a moments notice and particularly when my brain is already taxed and under pressure. The answer is that we need 1st to take it one step at a time but 2nd we need easy to remember and therefore quickly accessible rules of thumb (pun) to follow and 3rd we need to figure it out in advance "before" we actually enter the intended maneuver. The 3rd is critical because our minds are operating under a much taxed condition in that a great deal is always being calculated just to keep our craft under absolute directional control. Many times in by adding the second hand (or thumb) to our flight agenda our brains can get confused and go into panic mode. There are two normal reactions to this formidable mental brain fart, one is to pull "full up" in shear panic and the other is to freeze the sticks where ever you may have put them in not knowing what to do. We've all experienced this (and overcome it) in just learning how to fly. When installing rudder into your flight capabilities you can expect its return.

EARLY TESTING

Many times I'll be in a banked position in a turn and desire to not roll out but instead intend to remain banked and just kick some rudder and enter into knife edge right out of a turn. OK, so while you're still early in the turn do a little test and just touch the rudder in the direction that you believe to be correct and quickly release it to determine if you've decided correctly "which way" the rudder should be applied to exit the turn in knife edge. If the craft wiggles its tail in the right direction you've got it handled and furthermore you've already moved your thumb in the right direction once and have literally felt the correct input in your thumb. The follow through is now easy as you have opened a road in your mind for your brains neurons to simply repeat their traveled course. This really works! It's much like ants leaving a trail for the following ants to take and yes it fades away with time if not re-traveled soon. It's literally utilizing your short term memory but if done often enough (practiced over and over) it'll make the trip into your long term memory. If your test input was incorrect be careful and maybe just level out without doing the maneuver if you don't "feel" what is going to be the correct input. Another important note is that if you feel "anxiety" is coming on in trying to utilize rudder, quickly drop the rudder hand from your mind and go right back to one stick (aileron and elevator) until you regain your composure. Note; early testing works well but, get even further ahead of your craft and you can avoid testing all together, simply remember these two rules upon initially banking your craft before you intend to enter knife edge.

If entering knife edge from right side up, the required rudder input will be opposite of the aileron input that you used to bank from level to 90 degrees (always).

Here's another simple rudder rule for hanging on the prop. Question; if you're looking at the bottom of the craft which way does the rudder have to be applied if it falls off to one side? Simple... the rudder stick has to be moved towards the lowest wingtip, you could also say "follow the nose" as the correct input is to move the rudder stick in the direction that the nose of the craft is falling to, both examples offer an instant correct answer if you'll just think of it in a simplistic way. These kinds of thought processes provide an instantaneous "known to be correct" answer; relax, you've got it!

Yes I did sit at my desk one day with a toy airplane in hand while I was struggling with rudder in asking myself, "how can I make rudder easier to learn"; I've provided you with 3 found answers that I still use today so... get out there and kick some tail.

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How many people does it take to put rubber bands on a trainer?



Gary Pozzi's Aeroworks Cub



Chris Thomsen's Jet



Triston Williams
Our youngest member
Getting ready to
charge batteries.

SEEN AT THE FIELD...



Augie Caresani's beautiful Corsair. But where are the exhaust pipes, Augie?



Robert Shaver's own design. He calls it a Chameleon. It flies very impressively. Robert said it was years in the making—both in his mind and building.



These helicopters belong to Mike Martin, our newest member. Glad to have you on board, Mike, and look forward to seeing you at the field.

Submit your pictures to the editor (see email address on page 5). Please be sure and describe them when you do.

A big thanks to Augie Caresani for donating and cooking the delicious tri-tip at our season finale rudder-gate on October 26. And thanks to all who brought salads, dessert or whatever was there to eat. This is what makes the rudder-gates fun and successful. The next rudder-gate will be held May 24, 2014. There will not be a rudder-gate in April since the Bob Francis Memorial Scale event is planned on the fourth Saturday of April and food will be sold at that event. Thanks again, Augie. It was delicious!!!

I lost my big Beaver Saturday November 16 because of a stupid mistake. I didn't tighten the wing attached nuts, they vibrated off in flight and the right wing separated from the aircraft. It's a total loss. I don't tell you this to get sympathy which I don't deserve, but to help others from making the same mistakes. First, have a check list for assembling a large complex aircraft. There are fasteners that are out



of sight which make them easier to forget. Second, don't let yourself be interrupted while assembling the aircraft (and try not to interrupt someone else assembling an aircraft). Third, if I build it again there will be a secondary restraint system for the wings— even a single pinned dowel would probably have prevented the separation. And fourth, always double check everything in the assembly process. I don't know if I will build another. A lot depends on the condition of the engine which is yet to be determined.

Bob McGregor