

SAM SAYS



December 2011

Volume 36, Issue 12

salinasareamodelers.org

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IMAA GS SQD.
 CHAPTER 147



Toys for Tots Fun Fly & Annual Banquet in December!

DECEMBER REMINDERS

TOTS FOR TOTS - DECEMBER 3RD

SAM's annual toy drive for the children in Chualar will be held on the first Saturday in December. The Landing Fee is to bring two "unwrapped" toys, one for a girl and one for a boy.

ANNUAL BANQUET - DECEMBER 3RD

Don't miss the fun, food and fellowship of SAM's Annual Banquet. This affair takes the place of a regular meeting. Helen and James Klimas put on a wonderful sit-down dinner at the Landing Zone restaurant. Get your reservations in soon. If you miss the Nov. 22 deadline, you can still call John Midgorden or Bob McGregor for your reservations.

ELECTION OF OFFICERS

Everyone should have received a ballot in the mail for the election of officers for 2012. If you don't get your ballot in by the deadline, you can bring it to the banquet.

MEMBERSHIP DUES FOR 2012

Remember you must have your AMA dues paid before you send in your SAM dues for next year. The gate combination will be changed by mid-January, so send in your application as soon as possible.



Don't Forget to Bring Toys on December 3rd

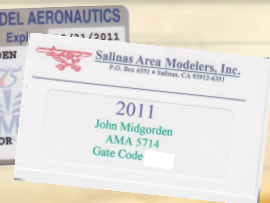
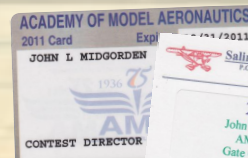


Larry Lopez' and his Big Cessna Skylane



Dick Moeller's Widgeon

The December Club Meeting is the Annual Banquet at the Landing Zone Restaurant



President Says . . .

Hello Fellow Samsters.

With the end of the year here I want to take the time to thank and acknowledge all of our sponsors. In no particular order they are . . .

AirAge media, Common Sense RC, St. Johns Attic, and Robins Hobby in Glendale, CA. The way it is in todays poor economy these companies have gone above and beyond with donations to support and help make the Salinas Area Modelers events successful and profitable. I want to strongly encourage every one who reads this newsletter to support these wonderful companies.

Air Age Media publishes several Magazines, including Model Airplane News, Electric Flight, Flight Journal, RC Car Action, De Cast X and have a popular Expo RCX. Their web site is www.airage.com. Check out their online web store.

Robin's hobby is a wonderful shop in Glendale. The ceiling is covered with models. They have or can get any and everything you could want or need for RC models. Robin Sr. and Jr. are good guys. Check out their store at www.robinshobby.com.

Common Sense RC is another really cool company. From helicopters and planes to motors and ESCs and great accessories. One of their accessories is a lost plane finder. Something I could have used a couple of times. Check out their website at www.commonssenserc.com/index.php

Jim and Linda (St. Johns Attic) have quite an array of tools, servo wires and glue. The next time you need a tool or a bottle of CA give Jim and Linda a holler. They are a great resource and we are lucky to have them here in town.

But just as important are all of you, my fellow SAM members. There is such a wide array of people in our club that all come together to make it all happen. It has been a great year. Thank you for making SAM such a great club!

Thanks again!

*Chris Meharg
El Presidente*



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THE "GO TO" GUYS | ELECTRIC POWER

MODEL
Airplane NEWS
electric
flight

I was trying to catch up with notes and reports after the Electric Event back in October.. and here are some notes of gratitude (in this Season of Thanksgiving).

First off.. I'd like to thank Dennis Stanley for starting the Volts Fly Electric Event some years ago and for his efforts in getting the solar charging facilities built!

It was very cool to have some returning flyers from our past E-vents—Greg Romaine from Stanford, and to the SAM members who brought out their E-planes. It was real cool to see Bob McGregor flying his Tame Cat that was a Robin's Hobby E-vent raffle prize a few years back. That plane flew very well.. and Bob really rang it out!

John Midgorden flew his selection of electric planes and Augie's Stearman gets my vote for the cool plane.. or was it Howard's B-25.. or Mike Parley's Shoestring Racer? Wait, maybe it was the "Mustang".. or ... heck.. it was a great gathering. Thanks.

Speaking of the raffle, Robin' Hobby sent up a Voodoo Mustang Racer ARF with motor and retracts and some hobby supplies. Common Sense RC sent up a lipo sack (thanks I needed one), a pro balancer and a new item—a plane finder. When your plane goes down into the Airplane Eating Forest that is to our south and west it will emit a noise to help you find it! (Fred got that...hope you don't have to use it!) The St. John's gave a pile of small tools for the raffle! Thank you very much! Made it a full raffle! I'd like to thank Debra Cleghorn of Model Airplane News/ Electric Flight Magazines for the subscriptions and hats! And also, to Chris Meharg for keeping the show running, Mike for cooking and everyone else who helped!

Hope to get more SAM members there next year.. and bring some choppers!

See you at the AMA Expo!

Jack Tossman (club reporter)
www.thespritofflying.com



MINUTES OF THE NOVEMBER CLUB MEETING

The November Club meeting was called to order by President Chris Meharg at 7:00 P.M. Board members present were Chris Meharg, John Midgorden, Bob McGregor, Walt McCommons, Dennis Stanley and Randy Bonetti. Members present were Alan Brown, Malcolm Bruce, Dick Moeller, Jack Jellá, Gary Mallott, Pat O'Keefe, Jay Beck, Ed Glynn, Bill Hurst, Ben Gacayan, Rod White, and Jim St. John. Treasurer Bob McGregor reported on the club's finances and indicated the 2011 membership is still at 87.

Old Business

1. Member Suspension: Chris announced that Dick Jurgens' membership had been suspended from flying for 30 days as indicated in the letter posted in the November newsletter. The 30 days were up as of the day of this meeting. Chris encouraged Dick to seek training with a buddy box. If the officers receive another written complaint regarding Dick's violation of the club's safety rules he could face a membership suspended for no less than a year. However, the Bylaws require that any suspension would require a vote of the membership.
2. Flight Training Manual/Check List for New Members: Bob promised to have something to consider at the January meeting regarding these two issues. Alan Brown volunteered to email Bob with the procedures used by the RC Bees in Watsonville. Bob suggested that whatever the club decides it will require an addendum to the Bylaws.
3. Membership Applications: John Midgorden announced that he had sent the 2012 Membership Applications forms to the webmaster, Joe Francis.
4. Parking Bumpers: Chris shared that the Board had decided to replace the decaying bumper logs with concrete bumpers. Bob McGregor will determine how many are needed and proceed with the purchase.

New Business

1. Elections: Christ provided the opportunity for nominations from the floor for 2012 officers and board members. There were no additional nominations, so the slate of officers listed in the November newsletter stands as printed.
2. Banquet: The annual banquet will cost the same as last year, \$25/plate. Jack Jellá explained how the white elephant gift exchange works.
3. 2012 Calendars: John Midgorden indicated that the calendars will be going to press the following week and they will be available by the time of the banquet (or sooner).
4. Toys for Tots: Chris reminded everyone that the landing fee for the Toys for Tots Saturday is two unwrapped toys, one for a boy and one for a girl.
5. Next Board Meeting: The January 2nd board meeting will be held at Pat O'Keefe's home.
6. T-34 Race: Jim St. John indicated the T-34 race circuit is active again and would like to race at our field. (An August 11th date was negotiated)

Show and Tell

Dick Moeller showed his "just purchased" G-44 Widgeon seaplane from Tower Hobbies.

Program

Alan Brown gave a lecture on his newsletter article on Dehedral and Sweepback wings.

Respectfully submitted

John Midgorden, Secretary

2012 CALENDAR (FINAL)

January

2	Board Mtg.	Location to be announced
4	Club Meeting	Salinas Airport
30	Board Mtg.	Location to be announced

February

1	Club Meeting	Salinas Airport
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March

5	Board Mtg.	Location to be announced
7	Club Meeting	Salinas Airport
17	Slope Soaring	Seaside Beach
24	Field Work Day	SAM Field
31	IMAC Contest	SAM Field

April

1	IMAC Contest	SAM Field
2	Board Mtg.	Location to be announced
4	Club Meeting	Salinas Airport
7-8	IMAC Contest	SAM Field
13-15	Float Fly	Lake San Antonio
27-29	Francis Memorial IMAA	SAM Field
30	Board Mtg.	Location to be announced

May

2	Club Meeting	Salinas Airport
18-20	Float Fly	Lake San Antonio
26	RudderGate	SAM Field

June

2	Glider Contest	SAM Field
4	Board Mtg.	Location to be announced
6	Club Meeting	Salinas Airport
16	Field Work Day	SAM Field
30	RudderGate	SAM Field

July

2	Board Mtg.	Location to be announced
5	Club Meeting	Salinas Airport
7	Glider Contest	SAM Field
14	Memorial Fun Fly	SAM Field
28	RudderGate	SAM Field
30	Board Mtg.	Location to be announced

August

1	Club Meeting	Salinas Airport
11	T-34 Pylon Race	SAM Field
4	Glider Contest	SAM Field
24-26	Scale Fun Fly	SAM Field

September

1	Glider Contest	SAM Field
3	Board Mtg.	Location to be announced
3	Labor Day Fly In	SAM Field
5	Club Meeting	Salinas Airport
14-16	Float Fly	Lake San Antonio
22	Field Work Day	SAM Field
29	RudderGate	SAM Field

October

1	Board Mtg.	Location to be announced
3	Club Meeting	Salinas Airport
6	Electric Fun Fly	SAM Field
12-14	Float Fly	Lake San Antonio
27	RudderGate	SAM Field

November

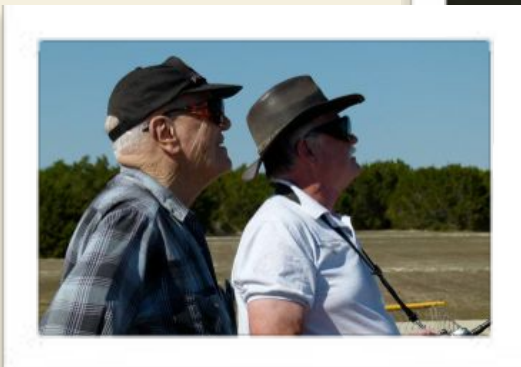
5	Board Mtg.	Location to be announced
7	Board/Club Meeting	Salinas Airport

December

1	Toys for Tots Fun Fly	SAM Field
1	Annual Banquet	Landing Zone



LARRY AYOTTE MODELS HIS DAD'S B-26



Larry Ayotte is a good friend of mine from my days in Arizona. We used to fly in IMAC contests together and both belonged to the Arizona Model Aviators RC club in Mesa, AZ. Larry used to be an airline pilot with American West (now US Air). He had to retire at 60 from the airline, but now flies for XOJET, the same outfit that Randy McGregor flies for. Larry has been building this replica of his dad's airplane for a couple of years. He maiden'd the airplane in Mesa and then more recently took it to Texas so he could fly it for his dad. The model is powered by two Evolution 23 gas engines. What a wonderful tribute to his dad.

Your Editor

ANYONE INTERESTED IN LARGE ENGINES?



If you are interested in large gas engines, Robins Hobby in Glendale has a good selection as shown on the left. If you are interested you can contact Robins Hobbies. A description is printed on the right of the engines shown.
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Have spare parts
\$1,800 or best offer
- 370 DYAD Herbranson Engine - new**
32 hp @ 8000rpm
Purchase price \$10,000
\$4,000 or best offer
- 3W 42i B2 Engine - low hours**
Purchase price \$4,000
\$1,500 or best offer



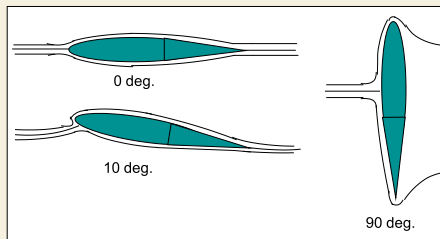
AERO 101 — HOW WINGS REALLY WORK

BY ALAN BROWN

A number of articles have been written in model aviation magazines, supposedly illustrating how wings work and how they generate lift. Most of them have had serious errors in them, and so this article will attempt to correct them. The first thing to note is that there is no dispute among professional aerodynamicists on this subject over the last 350 years! Here is a picture of flow patterns around a symmetrical airfoil at several angles of attack.

The sketches at 0 degrees and 90 degrees seem quite reasonable. Clearly, the flow over a symmetrical airfoil at 0 degrees will divide symmetrically at the nose and continue symmetrically to the trailing edge with no lift generated.

At 90 degrees, the airfoil is like a flat plate at right angles to the stream direction, and air will flow around both sides, probably separating as it tries to go round the edges.



However, it's the intermediate 10 degree position that seems to get people into trouble. There is a common assumption that the airflow divides right at the leading edge of the airfoil despite the obvious fact that it couldn't be true at 90 degrees. In fact, an article was written some time ago allegedly proving that modern aerodynamic theory must be all wrong, because if one measured the distance round the top and bottom of a Cessna 172's airfoil, and used that information to calculate the pressures on the wing from Bernoulli's Theorem (more on that later), there wouldn't be enough differential pressure to sustain the weight of the airplane. The answer is, of course, that the writer's initial assumption is incorrect, and the dividing point for air that goes over the wing, from the air that goes under the wing, is underneath the wing, and not at the leading edge.

Many general aviation aircraft have mechanical stall warning devices which are triggered by a small floating lever on the underside of the wing which is pushed backwards at low angles of attack (angle of attack is the angle that the airfoil sees from the incoming airflow, and which varies with the airplane's attitude). As the dividing airflow point moves backwards, there will come a point where it is behind the lever, and will force the lever forward, thus alerting the pilot to his critical angle of attack.

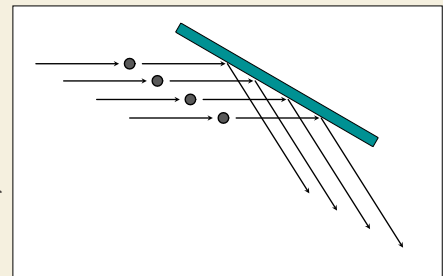
Now we can see that a symmetrical airfoil can experience lift at an angle of attack because the air has to accelerate in

going round the corner, thus reducing the pressure on the top side of the airfoil. We'll get to the equations that describe this in a few minutes.

Now let's go back into history. In the 1670's, Isaac Newton, a very bright physicist and mathematician, applied his postulated laws of motion to the flow over a wing, using his momentum theory, as shown below.



He assumed that the air could be thought of as a bunch of little particles striking the underside of the inclined surface, and giving lift via the change of particle momentum.



He tested this, and I don't know exactly how, perhaps by hanging his wing outside his coach window while his coachman drove at a known speed (England had milestones on all major roads in his day). Surprisingly, he found that the lift measured was almost three times what his momentum theory calculated, and so he realized that he was missing something in his analysis.

It was in fact left to another brilliant man, Daniel Bernoulli, to come up with the mathematics that explained the dilemma. In 1738 he published his classic book "Hydrodynamica" which explained how mass and momentum conservation in fluids could account for the different pressures and velocities associated with the streamlines through pipes and around bodies.

This is an illustration from his book, and here are his two

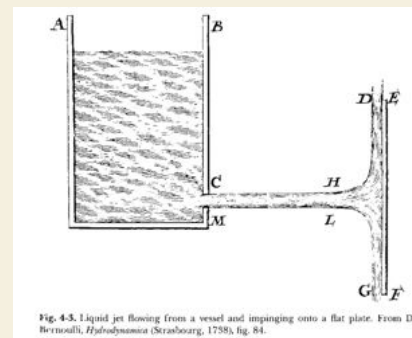


Fig. 4-3. Liquid jet flowing from a vessel and impinging onto a flat plate. From D. Bernoulli, *Hydrodynamica* (Strasbourg, 1738), fig. 84.

fundamental equations as adapted to airflow. As he was mainly concerned with water, the weight of the water was part of the total head or total pressure in his equations, not present here.

The first one says that what we call the total pressure, nowadays we measure it with a pitot tube, Continued on the next page



equals the sum of the static pressure, as measured nowadays

$$H = p + 1/2 \cdot \rho \cdot V^2$$

where H = total pressure
 p = static pressure (measured on surface)
 ρ = air density
 V = velocity

Mass Flow Continuity

$$\rho \cdot A \cdot V = \text{constant}$$

where A = area of stream tube

airplane. The equations are completed by noting that along what we call a stream tube, the mass flow must be invariant, and so as the area gets reduced, the velocity must increase, which means that the static pressure must go down. Here is a graph of pressure over a wing with various flap deflections. Let's look only at plain wing first, and come back to the effects of flap angle later.

by holes drilled in the surface of the airfoil or body, and the dynamic pressure generated by the local velocity of the airflow. Furthermore, for an airplane operating at a given speed and altitude, the value of H is given by free stream conditions, and remains constant over the surface of the

pressure is downward, corresponding to the upper and lower parts of the airfoil. The first very striking thing is that within the first one or two percent of the distance back from the leading edge, the pressure goes from a maximum value on the lower surface representing the total pressure where the air has come to rest, and rapidly as it moves round the leading edge at very high speed drops to a minimum value on the top surface, well below atmospheric pressure, p0, (the zero line on the graph).

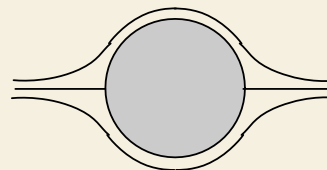
So the smallest pressure, and therefore the greatest lifting suction, is very close to the leading edge on the top surface. This is why good shaping of the leading edge is of paramount importance in obtaining an efficient lifting surface, much more so than tapering the trailing edge, which predominantly affects drag due to the width of the wake, but has little effect on lift.

You can see that as we move backwards over both the top and bottom surfaces, the pressures move steadily towards the atmospheric value, being almost, but not necessarily exactly, equal to it at the trailing edge. Here we can dispense with another common fallacy. The molecules on the top and bottom surface do not necessarily rejoin their original free stream mates at the trailing edge. They are not smart enough to do that!

The reason why we balance our models typically at the 25% point on the wing is that simple theory shows that this is where the overall lift acts, based on the dominant pressures being well forward on the wing. This lifting point is independent of angle of attack until the flow breaks down due to incipient stall.

So to summarize up to this point, Bernoulli's equations give a very good result to explain lift on an airfoil as long as viscous effects, like flow separation and boundary layer, are not significant. Fortunately, that is generally true for most of our flow regimes. Newton's original application of his momentum theory does not explain lift at all, and so it is completely erroneous to talk about Bernoulli versus Newton in explaining how lift works.

So how did the theory come about? We can work with a thing called a Stream Function to produce a simple picture of the flow round a circular cylinder, which looks something like this. Note that we can't, at this stage, represent flow separation behind the body. It can be transformed into an airfoil shape, and we'll get into that in our next issue.



Alan Brown

To be continued next month

Wing pressure distribution

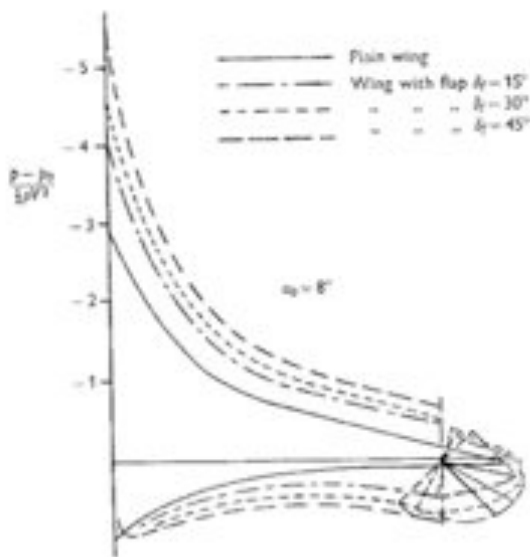


Fig. 14-2. Z. NACA 23012 section and 2c: plain flap. Change in pressure distribution due to flap deflection.

The wing, NACA 23012, is what we generally would call a semi-symmetric airfoil, 12% thick, at 8 degrees angle of attack. The flow round it will be similar to that shown for the symmetrical airfoil at 10 degrees in the first figure of this article. Just to confuse the reader, we generally plot pressure upside down, so negative pressure is upward and positive



SOME MEMORABLE PHOTOS FROM 2011

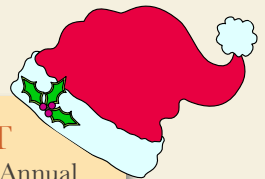


JANUARY BOARD MEETING

The next SAM Board Meeting will be held at 7:00 P.M. on January 2nd at the home of Pat O'Keefe. Board meetings are open to all SAM members. Pat's address is 15 Cielo Vista Terrace in Monterey. Phone number (831) 809-5830.

ANNUAL BANQUET

Don't miss the fun and food at the Annual SAM Banquet December 3rd at 6 P.M. Landing Zone Restaurant



Power's Fokker D.VII



*Howard Power Flew his Fokker for the first time on 11/12/11
 You may recognize this as the Balsa USA Kit originally built by Dave Downer*

Coming SAM Events

December

- 3: Toys for Tots Fun Fly
- 3: Annual Banquet at the Landing Zone Restaurant

January

- 2: SAM Board Meeting
- 4: SAM Club Meeting

ANNUAL BANQUET

December 3rd at 6:00 P.M.

Banquet Program

- Election Results
- Member of the Year Award
- Midgorden's Annual Movie
- White Elephant Gift Exchange

SAM SAYS

FROM:
 Salinas Area Modelers
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MAIL TO:

