



July 2013

Volume 55 Issue 7

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Next Event
July 13

Fly-In and Breakfast

0800-1000

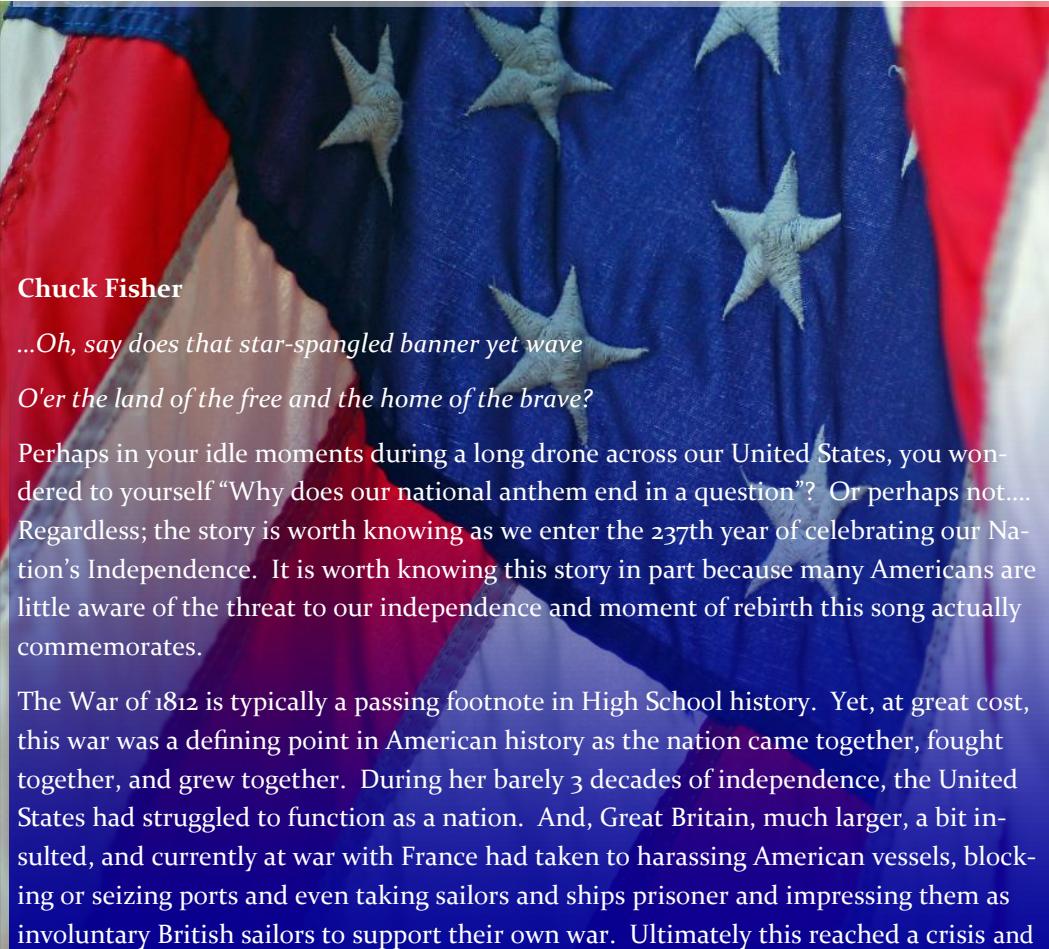
Chapter 35 Clubhouse
at 8T8

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O'er the land of the free and the home of the brave

Not about flying, but a story we should all know



Chuck Fisher

*...Oh, say does that star-spangled banner yet wave
O'er the land of the free and the home of the brave?*

Perhaps in your idle moments during a long drone across our United States, you wondered to yourself "Why does our national anthem end in a question"? Or perhaps not.... Regardless; the story is worth knowing as we enter the 237th year of celebrating our Nation's Independence. It is worth knowing this story in part because many Americans are little aware of the threat to our independence and moment of rebirth this song actually commemorates.

The War of 1812 is typically a passing footnote in High School history. Yet, at great cost, this war was a defining point in American history as the nation came together, fought together, and grew together. During her barely 3 decades of independence, the United States had struggled to function as a nation. And, Great Britain, much larger, a bit insulted, and currently at war with France had taken to harassing American vessels, blocking or seizing ports and even taking sailors and ships prisoner and impressing them as involuntary British sailors to support their own war. Ultimately this reached a crisis and

(Continued on page 4)

Featured Event

EAA Chapter 35 Fly-in/Drive-in Breakfast

Saturday, July 13, 2013 8:00 to 10:00 am

San Geronimo Airpark (8T8), San Antonio

*Menu: All you can eat pancakes, sausage, juice and coffee
\$7 each (honor system)*

Servers and cooks needed! Show up early for your assignments

PRESIDENTS COCKPIT

Chapter 35 Friends,

On June 15th I received a notification from the EAA National Headquarters. Trevor Janz (Manager, Chapters and Eagle Flights) wrote to inform us that, "... Chapter 35's newsletter has won the 2013 Best News Letter Award!" Well, it took me about two minutes to forward the news to Chuck Fisher. Wow!



This award not only recognizes Chuck's stellar efforts at publishing and distributing a world class newsletter for our Chapter, but it also reflects on the commitment we have shown as a team for our love for flight and toward our membership. Make no doubt, Chuck was (and remains) the point man on this effort. In addition, our newsletter has taken a lot of time and work over the years to develop to this level of perfection, with a lot of persons involved. And also, let's not forget to thank those many members who contributed noteworthy and informative articles that we have been fortunate to include on a monthly basis.

For me, this is not just a "Best News Letter" (in the nation!) award, it also confirms what I knew coming into this position 19 months ago: our Chapter membership is second to none. The support and commitment we continually receive from membership, chairpersons, officers, spouses and friends is #1. Just think about this -- how many chapters have had a space shuttle crew member pay a visit, and get treated to a walk-through of a multi-million dollar WW II aircraft hangar and touch Glacier Girl, and also take home an insulated mug with our logo patch inside? Once again ... wow!

You know we have one of the best chapters ever when I see members arriving (and leaving) with a smile. So, next time we meet, give someone a warm greeting and for goodness sakes, someone give a super thanks to Chuck!

Pre-flight as if your life depends on it,

Be safe, fly safe, taxi safe, fly happy,

Nelson Amen

From the Editor:

Thank you for the kind comments Mr. President and I'll publish pictures once the device makes it to the chapter. But for now let me reiterate your sentiments: THE CHAPTER won this award. The articles and submissions for this newsletter are funny, informative, and easy to print.

So: Keep em coming! You can once again say you were published in an award winning publication!

Chuck

Runway 35 OFFICIAL NEWSLETTER OF EAA CHAPTER 35 – SAN ANTONIO, TEXAS

www.35.eaacchapter.org

NEW MEMBERS**Ron O'Dea**

EAA Chapter 35 continues to grow! Please welcome:

Jim and Gayle Gibson.

Jim and Gayle live in San Antonio. Jim is a retired Naval Aviator who is currently building an RV-7! The wings and empennage are finished and he is working on the wings.

Additionally Jim is a pilot and instructor with the Civil Air Patrol and fly's C-172's and 182's.

Email: JWGibsonlo@hotmail.com

Jason and Emily Murley,

Jason and Emily live in San Antonio very near 8T8. Jason is an Air Force Officer and is stationed in San Antonio. As an owner of a Cherokee 140, he enjoys introducing people to aviation and encouraging them to learn to fly. Jason is looking forward to participating in the Young Eagles Program

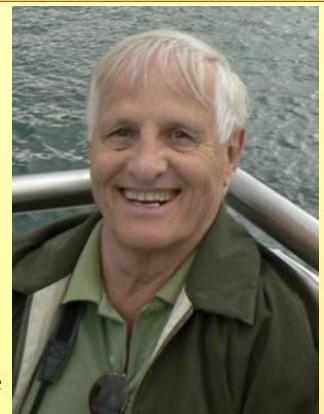
Email: d.j.murley@gmail.com

Welcome to Chapter 35!

GONE WEST—ROBERT “BOB” MASTERS

“Not alone into the sunset but in the company of friends who have gone before”

With a heavy heart we report the passing of former EAA Chapter 35 member Robert “Bob” Masters, EAA#330305. Bob “headed west” on June 4, 2013 ending his courageous battle against lymphoma. He was a loyal, active member of the chapter for several years and was working on a Glastar project when not traveling the world with his family. Bob served our country as an active duty and reserve Marine pilot, retiring in the rank of Lt Col after 27 years of service. He will be greatly missed by all whose lives he touched while part of the EAA Chapter 35 family.



CHAPTER BULLETIN BOARD

In this issue is an article regarding the aviation-related Android applications I use on both my tablet and my phone. For those interested Toshiba is clearing out their Excite 7.7" tablet for only \$199.99 on eBay. It's a full-featured unit with good battery life, a quad-core processor, 12 graphic processing units, onboard GPS receiver, and solid state gyros.
 This is the tablet Freda and I use. We like it!
 Here's the listing: <http://www.ebay.com/itm/32m8998533>

Steve Jones

For the July Fly-In Drive in we are going to be flippin' pancakes again. Feel free to bring other stuff to share! We could use some help serving and cooking as always. Hope for nice flying weather! We hope for a great turnout!!

Saturday, Sep 28, 2013

10:00am - 6:00pm

TSTC Waco
 (KCNW)
 Waco, TX

THE Heart Of TEXAS AIRSHOW



The Heart of Texas Airshow is coming to TSTC Saturday, September 28th, 2013. This festival of aviation features an exciting aerobatic Air Show and fun for the whole family! Join us as we bring World Class Air Show performers from across the country to Waco including two time Red Bull Air Race Champion Kirby Chambliss and an array of aerobatic flying feats, warbirds in close formation aerobatics, high flying action and Edge of your seat excitement! We proudly honor our military throughout the event. All day enjoy a variety of airplanes, helicopters, warbirds, skydivers, powered parachutes, RC aircraft and more in flight and display. Flights available to the public in a variety of aircraft. Exhibits, Food, Vendors, Kid's Activities and more! There is something for all ages at the Heart of Texas Airshow. Early online ticket discounts. Don't miss it! Like us on Facebook and visit our website for latest information and activities. We'll see you there!

Email: info@heartoftexasairshow.com

Website: <http://www.heartoftexasairshow.com>

YOUR Articles Needed

Chuck Fisher

This Newsletter is YOUR newsletter. I put the articles in it, but **you** have to write 'em!

Your chapter needs YOUR contributions. Please share your experiences, skills and wisdom, photos, humor and announcements with our membership. What may be common knowledge to you, may be priceless for a new pilot or builder. Even if you are not a Pulitzer level author—send me your words, I'll buff up the grammar if needed.

This issue features the second of a series highlighting particular member, project or skill. Please let me know if you'd be willing to show off your project or skills—or volunteer your buddy.

Send input to: eaa35news@gmail.com

BANNER (CONT)

(Continued from page 1)

Congress declared war on Britain in 1812. This was a pretty gutsy move for a new nation!

At first the US scored impressive naval victories and drove the British out of most coastal areas and even captured several of their ships. However, the British defeated the French navy and were then able to turn their entire fleet and Army toward the US.

They launched large scale attacks on the US mainland, captured or destroyed much of the US fleet and definitely gained the momentum. The British massed naval forces along the northern border of the nation and Great Lakes and began an East coast offensive to capture towns and trade routes. In August 1814, defeating an American army twice their size, the British Army swept across Maryland totally routing the US Armies and militias to capture the US capital. The Capitol and President's residence (White House) were burned as was much of Washington.

With the Capitol gone and major cities falling at the feet of a seemingly limitless British Army and Navy some feared for the future of the nation. Some called for surrender. This was the situation when the British Navy sailed into Baltimore harbor prepared to capture that city and raze it as well.

As the British left Washington they had arrested a civilian, Dr. William Beane, accusing him of arresting British stragglers. He was held aboard a ship of the British Navy. A friend of the Doctor, Francis Scott Key, a prominent lawyer was asked to help negotiate Dr. Beane's release. And thus, Mr. Key found himself aboard a "Truce Ship" in Baltimore harbor. Unfortunately for

him, he was witness to the Royal Navy attack on Fort McHenry and, although successful in negotiating Dr. Beane's release, was prevented from leaving the ship during the attack. At first the British attempted to circle around behind Fort McHenry, but were attacked by defenses in Fort Covington across the water. So they launched a direct attack on the larger Fort McHenry.

And thus, he witnessed a night of terrible bombardment followed by a sickening, deathly silence. Had he just witnessed another devastating American loss?

The long night of silence and darkness gave way to dense fog and smoke. At dawn, though, as the sun rose and the fog began to dissipate he watched the tattered American flag wave lazily above Fort McHenry. His British "hosts" had not prevailed. Moved by the sight, he began to write a poem about his experience on the back of a letter he had in his pocket. That night, back in his hotel in Baltimore he finished his poem and showed it to his Brother-in-Law who urged him to publish it for the folks there in Baltimore. He did so calling it "The Defence of Fort McHenry," and he

Dearest John,

You will be surprised to hear that I have spent eleven days in the British fleet. I went with a flag to endeavor to save poor old Dr. Beane a voyage to Halifax, in which we fortunately succeeded. They detained us until after their attack on Baltimore, and you may imagine what a state of anxiety I endured...

Fort McHenry opened the full force of all her batteries upon them as they repassed, and the fleet responding with entire broadsides made an explosion so terrific that it seemed as though mother earth had opened and was vomiting shot and shell in a sheet of fire and brimstone.

The heavens aglow were a seething sea of flame, and the waters of the harbor, lashed into an angry sea by the vibration. The Minden rode and tossed as though in a tempest. It is recorded that the houses in the city of Baltimore, two miles distant, were shaken to their foundations. Above the tempestuous roar, intermingled with its hubbub and confusion, were heard the shrieks and groans of the dying and wounded. But alas! They were from the direction of the fort. What did it mean? For over an hour the pandemonium reigned. Suddenly it ceased—all was quiet, not a shot fired or sound heard, a deathlike stillness prevailed, as the darkness of night resumed its sway. The awful stillness and suspense were unbearable.

I turned my eyes in the direction of the fort and its flag, but the darkness had given place to a heavy fog of smoke and mist which now enveloped the harbor and hung close down to the surface of the water.

Sometime must yet elapse before anything definite might be ascertained. At last it came. A bright streak of gold mingled with crimson shot athwart the eastern sky...

Excerpt from a letter written to his friend John Randolph of Roanoke shortly after the battle. From AMERICA; Great Crisis in our History Told by Its Makers; A Library of Original Sources Vol 4; 1925; Veterans of Foreign Wars of the United States

also included instructions that it be sung to the 18th-century British melody "Anacreon in Heaven". It was a hit.

The poem and song became, again, popular during the Civil War and the turbulent turn of the century including WWI. Finally, through the efforts of veterans, congress formally adopted the "Star Spangled Banner" as the national anthem in 1931.

So why does the anthem end with a question? It doesn't. The Anthem actually is a four verse poem and only the initial verse

(Continued on page 5)

BANNER (CONT)

(Continued from page 4)

poses the question whether the nation will survive. The subsequent verses answer the question:

*On the shore, dimly seen through the mists of the deep,
Where the foe's haughty host in dread silence reposes,
What is that which the breeze, o'er the towering steep,
As it fitfully blows, half conceals, half discloses?
Now it catches the gleam of the morning's first beam,
In full glory reflected now shines in the stream:
'Tis the star-spangled banner! Oh long may it wave
O'er the land of the free and the home of the brave!*

*And where is that band who so vauntingly swore
That the havoc of war and the battle's confusion,
A home and a country should leave us no more!
Their blood has washed out their foul footsteps' pollution.
No refuge could save the hireling and slave
From the terror of flight, or the gloom of the grave:
And the star-spangled banner in triumph doth wave
O'er the land of the free and the home of the brave!*

*Oh! thus be it ever, when freemen shall stand
Between their loved home and the war's desolation!
Blest with victory and peace, may the heav'n rescued land
Praise the Power that hath made and preserved us a nation.
Then conquer we must, when our cause it is just,
And this be our motto: "In God is our trust."
And the star-spangled banner in triumph shall wave
O'er the land of the free and the home of the brave!*

In quick succession the Americans vanquished the British from the Great Lakes and repulsed attacks at Baltimore, New York and New Orleans setting the British back on their heels. Unable to rapidly re-supply, they retreated, defeated, and surrendered in 1815. The United States had defeated a much larger enemy (again) and had fought as a single nation in combat and won.

The Star Spangled Banner captures the spirit of a critical time when the States, not yet totally comfortable working together, became a nation. This poem captures the pride of that time and centuries to follow.

As Paul Harvey used to say: "Now you know....the rest of the story". Happy Independence Day!

DON'T GIVE UP YOUR DREAMS**BRUCE KING AND THE BK-1****Chuck Fisher**

During the June chapter 35 picnic one of the most ogled aircraft was a tiny polished aluminum plane a fraction the size of its adjacent relatives. The tiny BK1 superficially resembles some other tiny planes like the Hummel and CriCri lines. However, on closer examination the most obvious difference is that the



tiny plane is wrapped around a cavernous cockpit. This cockpit could accommodate even big pilots with comfort. So, I was pleased to be able to have a chat with Bruce King (the BK in BK1) who is the designer, builder and now purveyor of the *BK Fliers* line of aircraft. And yes, he is local, right here in San Antonio and is a longtime EAA 35 member.

The BK1 sports a logo on the side that says "Don't give up your dreams". And indeed this is a story of a dream realized.

Bruce was bitten by the flying bug in 1969 and earned his license back then. However, as often happens, life interfered and he pursued a number of careers culminating in a Healthcare information technology stint. However, he never quite fully stowed his wings. One day he looked up to longingly watch a Cessna fly over and voice in his head echoed his now familiar refrain - "don't give up your dreams."

He knew he had to fly again, joined chapter 35 for advice, bought a book, and ultimately began to build a ragwing parasol to get back in the air again. That was 1998. In 2000 he scrapped the first all wooden attempt after 1 year and 3 months, then embarked on an all aluminum Hummelbird project. As designed it was too small for his slightly more than the 170 lb. FAA standard male frame. So, he re-designed the cockpit and fuselage,...the tail....the engine front end....and so forth. His final product bore



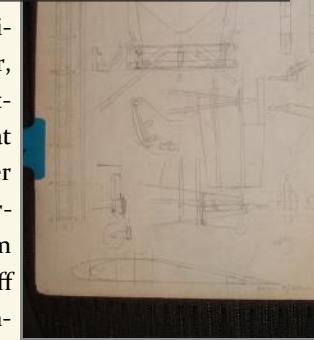
BK1 (CONT)

(Continued from page 5)

some resemblance to the original with a wider and longer body. The wing was stock, a major error, making this heavy Hummel-Frankenstein scary to fly. That plane, the "Silver Surfer" took about 18 months to build and even before it made it to both Sun-N-Fun and Oshkosh 2003 the pencil sketches of a new design began to appear on the folder divider of a work notebook. Bruce now says it would have been a lot easier to have started with an all new design in the first place.

These sketches became the BK1.0. She was completed in 2004 after 18 months of graph paper and cardboard templates. Little but the forward fuselage and engine cowl remained from the original modified Hummel. He designed longer, wider tapered wing panels that attach at the fuselage. Bruce says that saves as much as 6 months of center wing construction. He used center-section mounted spring aluminum gear in place of the original stiff tube struts for better ground handling and ease of construction.

When he showed the BK1.0 off at Oshkosh and Sun & Fun, Bruce was quickly surrounded with folks wanting to build a quick, easy plans-built that they could fit in comfortably. He really hadn't planned for this and had to convert his cardboard and graph paper design into plans to suit demand, but they, frankly, never were really up to his standards.



So, Bruce came home and began to use the lessons he had gleaned from the first two projects to design the BK1.3. The first lesson he applied was that, since it is hard to draw up plans after a plane is built, he would design

and build the BK1.3 using CAD design for every component in real time. Moreover, he rapidly developed a "Wikigroup" of builders. This group of builders were building their planes right along with Bruce using hot off the press plans. As they chipped in with corrections or suggestions, the plans were adjusted for clarity and ease. So, he, in effect had a nationwide

design team without spending a penny. He used a helmet-cam to photograph every step of the construction to mate with the plans. The result is that the plans for the BK1.3 included hundreds of highly detailed CAD plans and over 17,000 photos to show every detail of its relatively simple construction.

Bruce has retired now and devotes his time and energy to building the BK aircraft company and helping builders to assemble the BK1.. Gee, full time designing and building
(Continued on page 7)

BK1 (CONT.)

(Continued from page 6)

planes sounds like a pretty nice retirement!

The BK1 is a small plane by most standards with a 19 foot wingspan and 15 foot length. At the empennage it looms to a whopping 6 feet tall. It is powered by an 1835 VW derived engine designed and assembled by Great Planes specifically for this plane. It is an all flush-riveted aluminum construction, though it could be assembled with pull rivets if preferred.

The tiny aircraft will comfortably carry a 6'4" 250 lb. pilot plus 30 pounds of baggage and full fuel (15 Gallons for around a 400 mile range). It is a light sport qualified aircraft cruises comfortably at around 130 MPH.

Bruce's BK1.3 is a prototype. It shows some wear from shipping and sports some new innovations and ideas as they have come up. He doesn't have the "cheek cowls" or gear fairings on yet as he wants to study how they affect performance.

So he is flying it naked to learn more, then he'll add the cosmetics.

The plane is built of bent and riveted aluminum panels. His simple wingtip designs have been cloned on several other homebuilt designs since he first showed the BK1 several years ago. The spars are aluminum and mate to a built up aluminum center section



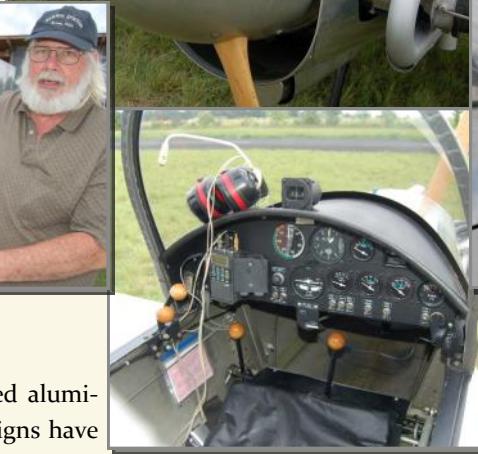
truss. Fittings and attachments are standard and straightforward. In the BK1 Bruce attempted to simplify fitting and construction by using 90 degree angles at the tail and fuselage panel/former interfaces. Eliminating complex angle resulted in

a rakish rudder that looks right at home on the torpedo shaped fuselage. The BK1 is a tricycle gear plane, but it can just as easily be assembled on a conventional gear like the original BK1.0.

Bruce describes the flying characteristics as gentle, predictable and docile. Stalls are around 45 mph with the full span flaperons deployed. The numbers, he says, are remarkably similar to a Cessna 150. The plane is not designed for aerobatics. However, Bruce is confident in its sturdiness and notes the description of his engineering consultant—"grossly overbuilt".

Bruce estimates most builders should be able to construct a BK1 from plans in around 1500 hours for about \$12,000 including engine. Although he has plans to offer pre-cut parts as a kit in the future, there is no "kit" available at this time.

Bruce King has done what a lot of us dream of. He designed and built his



own plane, fell in love with it, and has gone on to help dozens

(there are about 80 out there) of other pilots to realize their dreams in a simple, single place, inexpensive package.

The BK1 was the subject of a "name the plane" in this Newsletter. Now we know the rest of the story!



MAY 2013 EAA CHAPTER 35 PICNIC

Some Photos courtesy of Dave the Artist Baker. Thank you !!



MAY 2013 EAA CHAPTER 35 PICNIC

THE BUILDER'S CORNER

BASIC AIRCRAFT ELECTRICS

Mark Julicher

EAA 35 Technical Advisor

Are you rebuilding a classic? Beyond the airframe and engine and skin and cosmetics, how does that wiring look? Wiring was once considered an install and forget item, but this is far from correct. Read on and perhaps you can save yourself some grief.

Needless to say a brief article in our chapter newsletter is insufficient to cover the vast territory encompassed by 'Aeronautical Electrics.' Good references are essential and include Advisory Circular 43.13-1B and Aeroelectric Connection by Bob Nuckolls.

Generally speaking, old wire is bad news. Wire insulation dries out, hardens and fractures with age. This allows fluids to find their way under the insulation and can cause arcing from the wire through the liquid to ground. Older wiring may be insulated with nylon, polyvinylchloride (PVC), or other materials that are now considered hazardous in aircraft. Table 11-2b of AC 43.13-1B is a comparison of various wire insulation systems and the relative merits of each. Insulation properties include abrasion resistance, arc resistance, corrosion resistance, cut resistance and more. Insulation types considered acceptable in light aircraft include Teflon and Tefzel. Tables 11-11 and 11-12 in AC43.13-1B are listings of wire type by MIL number with good properties. These tables are not comprehensive, but are a very good place to start your deliberations. Don't forget that wiring to be used in severe wind and moisture problem (SWAMP) areas must meet stringent requirements compared to wiring in more benign environments. Here is a simple, thumbnail sketch of a few insulation materials and properties:

Teflon: OK, but subject to cold flow and splitting. Use cushioned restraints.

Tefzel: OK, but soft at rated temperature and subject to flow. Use cushioned restraints.

TKT: Teflon/Kapton/Teflon. Made by Tensolite Company under the brand name Tufflite. Currently used by Boeing.

PVC: Bad! Flammable. Produces toxic smoke. Gets brittle with age.

Kapton: Bad! Breaks down when wet. Subject to arcing followed by fierce burning.

Nylon: Bad! Flammable and produces toxic smoke.

So lets imagine that you wish to rewire a navigation light out on a wing tip. Just how should you go about this seemingly simple task? Start at the light and think your way back to its power source. The typical incandescent navigation lamp draws one amp current. The lamp is located about 20 feet from its on-off switch and the wire is run independently and not in a wire bundle. A circuit breaker or a fuse protects the nav lights. The circuit breakers are mounted on a buss bar. The buss bar is connected to the battery.

The next step is to decide on the value/size of each component in the circuit. First the wire: The wire must support one amp draw at 20 feet distance. AC 43.13-1B Chapter 11, Section 5, Figure 11-2 helps determine the minimum wire size. Wire size is determined by load, voltage drop over a given distance, continuous or intermittent flow, and heat. Bundled wires are not allowed to carry as great a current for a given gauge than an individual wire. (What? You don't have a copy of AC43.13-1B? Then why in blazes are you working on an airplane?)

Note that wire size 20 AWG (American Wire Gauge) is usually the minimum size to be used because smaller gauges are generally not strong enough in an airframe environment. The exception to this is if an OEM specifies smaller gauge in a particular, well-supported hookup. Similarly, use ONLY stranded wire and never solid wire. Solid wire is great in houses and for doorbells, but crummy in a dynamic, vibration environment. Other considerations include frequent flexing, vibration, frequent disconnection, and repeated bending. One last detail, all aircraft wire is plated with tin, nickel, or silver; but is never bare copper.

(Continued on page 11)

BUILDERS CORNER (CONTINUED)

(Continued from page 10)

After determining the wire size, it is a simple matter to determine the circuit breaker size. Remember that the circuit breaker protects the wire and not the electrical device. This is all about preventing a fire, not about protecting your five-kilobuck radio. The circuit breaker must also have some "overhead". If a one-amp circuit breaker is used to protect a one-amp load, it will pop very frequently because the initial "inrush" current of the electrical device is generally greater than its steady state one amp rating. Typically a 25 to 50 percent overhead is used – wire gauge allowing. Again, size the circuit breaker to match the wire and not the device being powered.

With all the component sizes figured out, it only remains to install the wire and hook it all up. So how to do that? First lets run the wire.

Soft wire such as Tefzel must be protected from hard items. Ergo, cushion clamps are the correct way to go and not zip ties. I know, we have all seen bundles of wires strangled with dozens of zip ties and it works – for a few years. Avoid this practice.

Use cushion clamps and support the wire at least every 24 inches. Rubber grommets are fine when running wire through bulkheads. Review AC43.13, Chapter 11, Section 8 for the dos and don'ts of wire installation. It is here you can learn that coax cable can't be bent tighter than six times its outside diameter, and that friction tape and plastic tape are not acceptable, and that drip loops must be used to prevent fluid travel, and much, MUCH more.

Marking wires is a good practice. It may seem tedious, but just wait until you have to track down a problem in a bundle of 25 white wires. Marking includes such practices as colored tapes, clear sleeves which capture system names/numerals, or for the well-heeled, laser-etched nomenclature right in the insulation. Need more techniques? See AC43.13-1B Chapter 11 Section 16.

By the way, ribbon cables are fragile, solid wires encased in PVC. Yuk. Many engine analyzer systems and fancy glass panels are

using ribbon cable. Can't do much to fix this problem, but beware, be suspicious, and be gentle!

While you are wiring, think about this; Current flowing through wires produces magnetic fields as well as electric fields. Hmm, does your compass deflect when you turn on the cockpit lights? High frequency alternating current and pulsating DC produce RF energy – it is a radio!! Shielding keeps RF out of places where it should not go. Sparks produce RF energy at every frequency from DC to light. Use shields and filters to keep this noise out of other circuits. AC43.13 has more to say about separation of wiring in different circuits.



Good tool. Ratcheting crimp tool with jaw openings for red, blue and yellow terminals.

So, we have run our properly sized, well-marked wire with due consideration for nearby equipment and we supported the wire with cushion clamps and now it is time to connect it. For this task, pre-insulated, crimp-style, ring-tongue terminals are preferred. A good crimp is as strong as the wire. Crimp terminals have a certain amount of stress relief built in



No! Use this for automotive or household chores, but not on your plane.

because part of the crimp is made onto the wire insulation. Crimps are made with a good crimp tool. Good crimp closed and do not full crimping press-applied. Good made with any tool from the local home improvement store.

Quick note here: Pin crimping, DIN terminals and canon plugs are a whole 'nother world with lots of special tools and well beyond the scope of this article.

Aviation grade crimp-on terminals do not usually come from NAPA or Auto Zone. Automotive terminals are opaque plastic. Aviation terminals are translucent so you can see that the wire is fully engaged in the crimp zone, especially on butt splices. Terminals come in colors – red, blue, yellow. This is not to color coordinate your wiring system, it tells you what size wire is OK

(Continued on page 12)

BUILDERS CORNER (CONT.)

(Continued from page 11)

to put in that terminal. Red for 22 through 18-gauge wire, blue for 16 and 14, and yellow is for big 12 and 10 gauge wires.

What about soldering? Soldering is not a good idea, and except for RF connectors it is almost never used! It breaks under vibration and it corrodes, and soldering after crimping makes the crimp joint subject to breaking.

How about grounding? Gozintas equals gozoutas. If you pump 10 amps into a landing light, then 10 amps must return to the battery through the aircraft ground. Ground usually means the aircraft structure. If you pump 10 amps into one wing and 15 amps into the other wing, there will be an unbalanced return flow that causes a (probable) ground current. This can be really bad. So bad, in fact, that Murphy's Law of Counteracting Errors can't overcome the induced glitches. You can install grounding points in order to direct ground current in a definite manner and thus prevent ground current. More info on grounding can be found in 43.13-1B, Chapter 11, Section 15.

When should you replace wire? Here are some rules of thumb.

- Chafed, frayed, primary insulation is penetrated.
- Outer insulation is brittle and easily cracked
- Weather cracked
- Wire was exposed to electrolyte or appears to be chemically deteriorating.
- Evidence of overheating – even just a little bit.
- Insulation saturated with Petroleum, Oil or Lubricants.
- Evidence of crushing or kinking.
- Frayed metallic shielding.
- Dirt, cracks or deterioration under terminal insulation.
- Splices at less than 10-foot intervals.

This article is entirely too brief to make you an expert in aircraft wiring, but I hope it gives you some good ideas. There are many, easy to read, detailed books on the subject of aircraft wiring so do a little bookwork and it will save you a lot of trouble.



Insulating sleeves are removed here for clarity. Upper terminal is general purpose/automotive use. Lower terminal is aircraft grade. Photo Credit: Sacramento Skyranch

TECH WATCH

ANDROID APPS

Steve Jones

During the Hondo Army Airfield Fly-in, May 17-19th, 2013, we had a few moments to sit down in the pilot's lounge and compare notes -- apps, actually. If you're using a smart phone, or traveling with a tablet computer, chances are, there really is an 'app for that' -- an application that meets your particular aviation need. In this briefing, I'll cover a few of the applications I use on my HTC EVO 3D telephone.

Apples and well, Androids: Your mileage may vary, as these are two very capable platforms, and the best of breed software may appear on one, and not the other. In this article, I'll concentrate on applications for Android phones and tablets. Next time, I'll cover the apps I run on iPhone and iPad devices.

The following list is by no means comprehensive, and it may not meet your particular needs. Mine are driven by my style of flying: weekend recreational flying. So, I seek out applications that meet my need to occasionally access data and improve my situational awareness for one or two flights per month. There are better, more comprehensive applications; some that fuse near-real time weather and traffic information from carry-aboard ADS-B receivers. I encourage you to look at this list and consider the possibilities, but don't stop here – there's a world of outstanding software available for your device.

One of my goals is to bring as much data with me as possible, so that I don't require a data connection to the ground while airborne. For Part 91 flights, FAA doesn't prohibit use of your mobile device. However, the Federal Communications Commission (FCC) takes a dim view of ground mobile communications devices attempting to connect to a broad swath of cellular towers from an airborne vantage point. My moving map and combination applications allow me to download sectionals, AF/D, TAC, approach plates and high and low IFR enroute charts onto the phone prior to leaving the ground.

For the Android platform, I've found the following applications are very useful:

For Briefing: DTC DUAT for Android



<http://play.google.com/store/apps/details?id=com.duat.DuatForAndroid>

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TECH WATCH (CONTINUED)

(Continued from page 12)

For Flight Planning:



Flight Plan's 'FltPlan.com Mobile'

<https://play.google.com/store/apps/details?id=app.fltplan>

For Weather:

(FA/TAF/NWS products) **Appventive's 'Aviation Weather**



from NOAA/NWS'

<https://play.google.com/store/apps/details?id=com.appventive.mobilewx>

Steve Dexter's 'Aviation Weather with Decoder'



<https://play.google.com/store/apps/details?id=europe.de.ftdevelop.aviation.weather>

RADAR:



Hugo Visser's 'Rainy Days'

<https://play.google.com/store/apps/details?id=com.neenbedankt.rainydays>

US Naviguide LLC 'RadarNow!'



https://play.google.com/store/apps/details?id=com.usnaviguide.radar_now

For Enroute Navigation (moving map, terrain, obstacles, sectionals):



Apps For Aviators 'Avare'

<https://play.google.com/store/apps/details?id=com.ds.avare>

A Great Combination:



Aircraft Owners and Pilots Association 'AOPA FlyQ Pocket'

<https://play.google.com/store/apps/details?id=org.aopa.flyq>

Portable Attitude Indicator:



BBFlight LLC 'Flight Instruments'

<https://play.google.com/store/apps/details?id=com.bbflight.flighthandheld>



Apps For Aviators 'In-flight Instruments' (aka Gyro)

<https://play.google.com/store/apps/details?id=com.ds.gyro>

E6B:



Nathan Jovin's 'FlightTools E6B'

<https://play.google.com/store/apps/details?id=com.nathan.e6b>

Miscellaneous:



Steve Dexter's 'Aviation Pocket Knife'

<https://play.google.com/store/apps/details?id=europe.de.ftdevelop.aviation.toolknife>



Steve Dexter's 'Aviation FlightTime Calculator'

<https://play.google.com/store/apps/details?id=europe.de.ftdevelop.aviation.flighthtimecalc>



Steve Dexter's 'IATA/ICAO Dictionary'

<https://play.google.com/store/apps/details?id=europe.de.ftdevelop.aviation.airportcodes>



Apps For Aviators 'IFR & General Aviation Timer'

<https://play.google.com/store/apps/details?id=com.ds.itimer>

GPS/ILS Approach Practice:



Dierk Reuter's GPS ILS

https://play.google.com/store/apps/details?id=gps_ilspackage

These applications work best with newer devices and, in fact some require specific sensors. For example, all the moving map navigation applications rely on an onboard, or Bluetooth-connected GPS receiver. In addition, the two attitude (artificial horizon) applications rely on an available onboard solid-state gyroscopic sensor. To determine if your phone or tablet has the required sensors, use the following application:

Device Manifest:



Idea Matters 'Sensor List'

<https://play.google.com/store/apps/details?id=com.miiian.android.sensors>

There are other many, many useful aviation applications out there. I hope this list helps you find a few, and sparks your imagination to seek out your perfect application, or perhaps to author your own.

An appendix containing the product descriptions for each of the applications listed above is posted at the end of the *electronic* newsletter but not the print copies due to length

Editors note: Today's aviators are fortunate to have at their fingertips unbelievable aids to situational awareness. Whatever device or devices you chose, practice with them on the ground until they are instinctive. They are not always suitable for use in the plane and trying to peck on the hand-held could be a critical distraction. Be safe!

(Continued on page 21)

JUNE MYSTERY PLANE REVEALED**NAME THE PLANE****Doug Apsey**

If you guessed that the June mystery plane was an L-19/O-1 Birddog on steroids, you were right on. It was actually the SIAI-Marchetti 1019 which started life as an O-1 Birddog and was rebuilt by SM to serve as a short takeoff liaison aircraft for the Italian military. The engineers at SM took the Cessna 305/O-1, modified the tail section and hung an Allison turboprop engine on the front. The engine on the original version was derated to 317hp while a later version had a 400hp version of the Allison turboprop.



http://1.bp.blogspot.com/-MStPeE3fNN4/TrSBq_uFlc/AAAAAAABPrg/DKMzEoomKs/s1600/SM1019-bia.jpg

extendable to 60 degrees, stall speed is 45 knots. The SM.1019



http://www.air-and-space.com/20101023%20Casa%20Grande/_BELO606%20SAlA%20Marchetti%20SM%201019%20N2525M%20right%20side%20in%20flight%20m.jpg

can get airborne in as little as 300 feet and has a rate of climb of 1700 feet per minute. Landing roll can be as short as 400 feet thanks to the 1019's heavy duty brakes and reversible pitch three blade prop.

**Doug Apsey**

This month's mystery plane is courtesy of Chuck Fisher and the Air Force Museum website. NO DON'T LOOK IT UP...that is cheating.

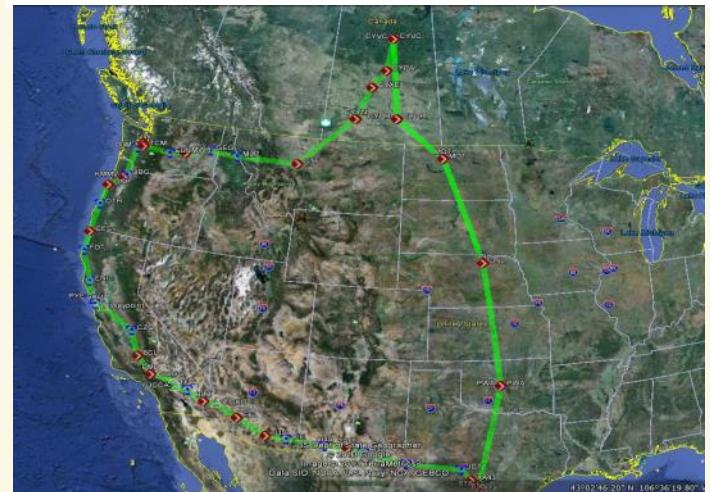
So, who will be the first to tell me:?

- 1) What is the designation of this plane?
- 2) From what aircraft was it derived?
- 3) What year did it first fly?



- 4) What year was it retired?
- 5) Why does it look so weird?
- 6) What was it used for?

And, if you happen to be or know one of the fella's in the picture you get extra credit.



Here is a Google earth depiction of Goodes upcoming round-robin trip. Get shopping requests to them now. I'm sure their 172RG has room for a few cases of wine!



Country Store

Brian Goode



There are still some Chapter 35 Tervis Tumblers available for sale through the Country Store. The embedded logo is a embroidered patch between the insulated layers of the tumbler, not a stick on label.

They can be purchased at any of the Chapter 35 functions or by stopping by Hangar 53 at San Geronimo Airpark when you are out visiting your aircraft. The price

remains at \$16.00 each and are packaged in quantities of four. Give Brian Goode a call at 727-709-1159 and reserves some today.

The Chapter is excited to introduce a new locally designed and produced (Yup Made in Texas, USA—Really!) product to tell you about, the Aero- Camper Chocks. These wheel chocks are lightweight, portable and durable. Designed for use on grass or dirt parking areas, they work equally well on pavement or tarmac.

These units are precision water-jet cut from 6061 aluminum extrusion, hand finished and powder coated. Chocks are 2-1/2" X 5" long. At only 7.5 oz. for a pair of chocks, they provide secure chocking without sacrificing useful load or space.



These wheel chocks are available for a \$21.00 / pair donation to the Chapter. Most people are getting two sets, one for each main wheel. They will soon be on display at all Chapter 35 functions, or you may call the Country Store at (727)-709-1159 to re-reserve a couple sets.

Also we need ideas for new merchandise—contact me with yours!

EAA CHAPTER 35 CATALOGUE

Caps:

Cloth Chapter 35 and EAA Notional caps

\$10



Mesh Chapter 35 logo caps

\$5

SWRFI caps (collector's item)

\$8

Denim Shirts: Only 2 Large Short sleeve left

\$20

Tervis Tumblers

\$16

Chapter 35 cloth logo patches (sew on)

\$3

Bumper stickers

\$2

Chapter 35 logo stick-on stickers (Per inch)

\$2

2012 EAA Chapter 35 Contacts List



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President: 210-834-1991	Nelson Amen nelson.p.amen@gmail.com	210-688-9072	lewnan@sbcglobal.net
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Garden & Grounds 210-688-9072	Nancy Mason lewnan@sbcglobal.net	RB 'Doc' Hecker 210-391-1072	Technical Counselors
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			lewnan@sbcglobal.net

The FINE PRINT: Please note that, as always, in the past, present, or future, any communication issued by the Experimental Aircraft Association Chapter 35, regardless of form, format, and/or media used, which includes, but is not limited to this newsletter and audio/video recordings, any digital formats including any EAA Chapter 35 website, is presented solely for the purpose of providing a clearinghouse of ideas, opinions, and personal accounts. Anyone using the aforementioned does so at their own risk. Therefore, no responsibility or liability is expressed or implied and you are without recourse to anyone. Any event announced and/or listed herein is done as a matter of information only and does not constitute approval, control, involvement, sponsorship or direction or any event local or otherwise.

CHAPTER CALENDAR

JULY	13	 <p>FLY-IN BREAKFAST EVENT <u>Chef, Prep Cooks, Servers Needed</u> BOD Meeting</p>	EAA Chapter 35 Clubhouse 8:00-10:00 am 10:30 am
AUGUST	10	<p>DAYTIME MEETING Speaker: Dave Baker "Demonstration of steps to cut open and inspect an oil filter"</p>	EAA Chapter 35 Clubhouse Lunch 11:30 am Meeting/Program 12:30 pm
SEPTEMBER	14	<p>DAYTIME MEETING Flying the F-177 Stealth Fighter Col (ret) Lex Brown</p>	EAA Chapter 35 Clubhouse Lunch 11:30 am Meeting/Program 12:30 pm
OCTOBER	12	<p>DAYTIME MEETING David Larson "Idaho Backcountry Flying."</p>	EAA Chapter 35 Clubhouse Lunch 11:30 am Meeting/Program 12:30 pm
NOVEMBER	9	<p>ANNUAL CHILI COOKOFF Annual Membership Meeting</p>	EAA Chapter 35 Clubhouse Lunch 11:30 am Meeting 12:30 pm
DECEMBER	14		EAA Chapter 35 Clubhouse Social Hour 12:00 pm Lunch 12:30 pm Gift Exchange 1:30 to 3:00 pm

Upcoming Events (200 mi of 8T8)

Aviation Calendar of Events websites

Aero Vents	http://AeroVents.com
EAA	http://www.eaa.org/calendar
Fly-ins	http://www.flyins.com
Fun Places	http://funplacestofly.com

06/08/2013 -to- 08/31/2013 (All summer)

Saturday BBQs at Skyport (Fly-In)

Redbird Skyport - San Marcos, TX

Free Hamburger with 10 gallons of fuel every Saturday this summer!

07/06/2013

Pancake Breakfast (Fly-In)

McGregor Executive Airport - Waco, TX

07/13/2013

Fajita Fly-In (Fly-In)

Angelina County Airport - Lufkin, TX

7/13/2013

1200 noon

Anderson Aviation BBQ

Bulverde Air Park

07/13/2013

Pancake Breakfast Fly-In (Young Eagle Rally)

New Braunfels - New Braunfels, TX

07/20/2013

BBQ Fly-In (Fly-In)

Jasper County Airport - Jasper, TX

Saturday, July 13, 2013

9:00 a.m. - 12:00 p.m.

Young Eagles Rally

Del Rio International Airport, Del Rio, TX, USA

Come join EAA Chapter 1493 in support of the Young Eagles Rally. Couldn't be a better reason to Fly-In to DRT.

Saturday, September 28, 2013

10:00am - 6:00pm

Heart of Texas Airshow

TSTC Waco, Waco, TX, USA

Activities. Something for all ages!

<http://www.heartoftexasairshow.com>

29 July—4 Aug—Airventure (Oshkosh)

WANTED AND FOR SALE

FOR SALE: Complete RV-8 Quick Build Kit with O/H Lycoming IO-360 engine (minus starter/mags/prop) - \$50K Contact: RB "Doc" Hecker at www.assenddragonaviaation.com or tcflyingdoc@yahoo.com

FOR SALE: Early RV-3 kit. Tail; feathers, flaps and ailerons finished and primed. Wings are finished but are the old version and only useable for parts. Have cowling, windshield structure, gear parts, wheel pants, engine mount, etc. All sheet metal and formed bulkheads for fuselage. Zero time Lycoming O-320-E3D engine with all new parts. Include engine log book and builder's log. Health forces sale. Tom Gould 830-663-4448 or nazca9t@hughes.net

FOR SALE: Stolp Starduster Too SA 300. Eng. Lyc O320 (160 hp), newly rebuilt, constant Speed Hartzell Prop, 30 gal fuel tank, new Ceronite fuselage cover, full flying surfaces rejuvenated. MUST SELL-Make Offer. Call Dan Cerna at (210) 688-9345.



FOR SALE: Subaru EJ-22 engine, Ser. # 589390. Includes single 4-barrel carburetor, Mallory ignition, planetary reduction drive. Proven system, removed from flying aircraft. \$3100 Chuck @ 979 218 6153

FOR SALE: Hegar brake master cylinder. 7" single control, Bore size - 5/8" (0.625). Includes brake bleeding kit, misc. fittings. \$95 Chuck @ 979 218 6153

FOR SALE: Main wheels for UL or light experimental. One pair Matco Model MH6B wheels, with brake calipers, new brake pads, new wheel bearings, new Air Trac 15X6.00X6 4-ply tires. \$295 Chuck @ 979 218 6153

FOR SALE: One unused Air Trac 15X6.00X6 4-ply tire. \$40 Chuck @ 979 218 6153

HANGAR SPACE FOR RENT (8T8): Several new hangars will soon be available for rent. If you are interested in renting a brand new 40 foot wide by 32 foot



deep hangar, please contact one of the following EAA Chapter members (listed in alphabetical order): Brian Goode, Richard Gramling, Joe Killough, Lew Mason or Ron O'Dea. Their phone

numbers are listed in the new EAA Chapter 35 Directory. There might be others for rent, but we don't know about them. The hangars have concrete floors and will have electric and water service run to them.

HANGAR SPACE FOR RENT (8T8): I will have a t-hangar (30A) available 6-1-2013 Contact Doc Hecker. 210-391-1072.

FOR SALE: Hangar at Boerne Stage Airfield, 5C1. 30' x 40', elevated office and storage, shop, storeroom, and, toilet. Airport fee \$540 per year, includes water, trash disposal and runway access. See at hangarHunter.com



Contact Bill Bartlett 210-865-4591 Email: bartlettsat@gmail.com

WANTED: O-200 case and crank. Other parts or a complete engine would be considered. Run out engine is OK. Contact Mark Julicher at 210-382-0840 or mjulicher@earthlink.net

EDITORS NOTE: PLEASE Notify me when your item sells!!



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email: joe@killough.us

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www.valavionics.com



CP: (210) 391-1072
Fax: (830) 980-8866
Email: tcflyingdoc@yahoo.com

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P.O. Box 279, Hangar 38
Bulverde, TX 78163

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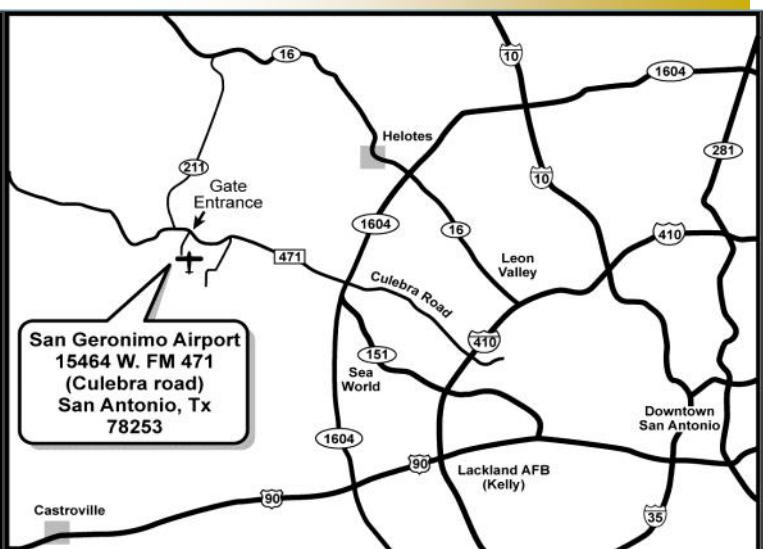
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Ron O'Dea, Membership Chairman
15464 FM 471 W, #14
San Antonio, TX 78253

The Official Newsletter of EAA
Chapter 35, San Antonio, TX

**Chapter 35 meets
Each Second Saturday of the Month**

**July 13
Fly-In and Breakfast
0800-1000
Chapter 35 Clubhouse at 8T8**



EAA Chapter 35 is part of the worldwide network of EAA chapters. EAA embodies the spirit of aviation through the world's most engaged community of aviation enthusiasts. EAA's 170,000 plus members enjoy the fun and camaraderie of sharing their passion for flying, building and restoring recreational aircraft. Our clubhouse and building facilities are located at San Geronimo Airpark (8T8) located off FM 471 (Culebra Rd) West of San Antonio.

For over 50 years Chapter 35 has represented aviators of creativity who share a passion for flying. Come join us!

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The following summaries are available only in the digital format Newsletter. The author and editor make no claims as to the accuracy of this content as it is derived directly from the vendors web-products

DTC DUAT



Description

Version 1.0.2 was released to allow ICAO flight plan filing under the new FAA ICAO 2012 changes and to fix problems with Samsung Galaxy S3 phones. Contact us at support@duat.com or call 800-243-3828 for assistance!

The New! DTC DUAT for Android App allows pilots quick and easy access to the DUAT system to file flight plans, get a weather briefing, check weather graphics and much, much more!

- ▶ Review recent requests you've made to the DUAT system
- ▶ Use your Pilot and Aircraft Profiles from the DUAT system
- ▶ My DUAT Stored Requests for quick briefings

Weather Briefings

Standard, Abbreviated or Outlook Briefings

Route Briefings

Area (Local) Briefings

State (Regional) Briefings

Specific Locations Briefings

Flight Plans

File Domestic

File ICAO

Close VFR Flight Plan

Flight Plan Status

Planning Tools

Full DTC Flight Planner

Simplified Flight Log

Special Use Airspace checker

ATC Advisories

Aeronautical Data

Airport Info with Flight Procedures, Airport Diagrams and more!

Encode/Decode FAA Abbreviations and Location Identifiers

Saved PDF Files to take IAP's with you

My DUAT

Stored Requests

Stored Routes

Pilot Profiles

Aircraft Profiles

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Fltplan.com Mobile



Description

Flight plan information with access to FltPlan.com (both mobile and full site).

NEW Pre-Departure Clearance retrieval

Includes

- Location Wx and Enroute Wx briefings with radar
- Flight tracking
- Downloadable U.S. and Canada Approach Plates
- Downloadable U.S. Airport/Facility Directory
- FltPlan's FltDeck Guide - access airport and FBO information for over 6,000 airports in 17 countries
- Moving Map feature with downloadable U.S. and Canada IFR and U.S. VFR charts
- FltPlan.com's Weight & Balance utility - sync directly with your account
- Documents feature allows you to download directly from your FltPlan.com document storage. Now including legends and general information for IAP's, A/FD, TEC Routes, and VFR/IFR chart legends.

• Runway Wind Calculator. Calculate tailwinds/headwinds and left/right crosswinds.

• Fuel Conversion Tool. Calculate AvGas and Jet A1 fuel weight. Calculate pounds per gallon, gallons per pound (kilograms and liters included). A savable Custom Fuel Type is available / enter your own pound per gallon (or kilogram per liter).

• Temperature Conversion Tool. Quickly and easily calculate degrees Fahrenheit to and from degrees Celsius.

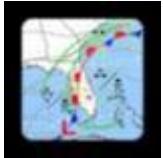
• Pressure Altitude and Density Altitude Calculator

Compatible with Android tablets and Android 4.2 (Jelly Bean) OS devices.

Feel free to contact us with any questions or comments. Support@FltPlan.com

For information and help on this App, please visit our Information & Help Guide: <http://imageserver.fltplan.com/android/index.htm>

Aviation Weather from NOAA/NWS



Description

App for pilots.

Convenient launcher for the mobile version of aviationweather.gov. We like this site, but can't take any credit for it. Weather graphics, radar, satellite, and METARs/TAFs/PIREPs. Enjoy! NOTE: Now w/hi-res images For Android 2.0 or later: Save favorite ME-

(Continued on page 23)

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TAR & TAF searches + multiple ids per search.

New for Android 1.6 or later: if you prefer an ad-free experience, or just want to increase the available screen space a little, you can now purchase the ad-free license for \$0.99. From the app, press MENU/"Go ad-free" to connect to the Market and make the purchase. This will turn off the banner ads forever.

Aviation Weather with Decoder



Description:

Decodes Metar and TAF reports from NOAA and notams

Features:

- more than one weather report at once
- past weather reports available
- storage of reports and notams
- input by ICAO/IATA, airport name
- airports can be watched by Google maps
- METAR decoder
- save your preferences
- change textcolor, textsize and textfont
- two widget with two different update rates
- Decoder for Monte and NOTAM Snowtams
- Decoder for METARS
- Volmet
- Crosswind Calculator

Rainy Days



Description

Rainy days shows you weather radar Doppler images from buienradar, meteox, vaderradar, eumetsat and nws using Google Maps. You can zoom in and pan all you like!

Coverage: Europe, Iceland, Scandinavia, USA incl Alaska, Canada, Hawaii, Puerto Rico, Guam, Africa, Australia

Note: shows rain (radar reflectivity), not clouds!

If something is not working on your device, please send me an email, adding a comment doesn't give me enough information to fix any bugs!

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RadarNow!



Description

Weather radar in your pocket!

Use RadarNow! to quickly see an animated radar image and current conditions! No digging through menus to see if a storm is on the way!

RadarNow! provides National Weather Service (NWS) Enhanced Radar "Base" (NoR) images from the NOAA WSR-88D NEXRAD Radar sites located around the US. Radar images are downloaded directly from NWS servers so are always the most current available. When you start the app, the radar images are from the site closest to your location.

NWS Alerts included with the free mode starting in v4.0. Only alerts issued to the your current county are sent and the alerts can be filtered so only the ones that interest you are used.

Don't like our banners? Anyone can opt-out of banner in the settings for free.

RadarNow! is a free download with access to Premium features. Use the FREE Standard version to monitor your local radar and receive NWS Alerts or choose to upgrade through the app to Premium if you want to activate the enhanced features. You may try the premium features with our free 5 day trial or purchase one year of access for \$2.99 or \$4.99 for two years. You will not automatically be billed and must manually renew when your access expires.

The 5 day free trial gives you free access to the premium features. Once the 5 day trial has passed, the app reverts back to the free "standard" mode. You will not be charged to use the free trial under any circumstances.

Lose or upgrade your phone or tablet? No problems. Your paid access moves with you. Buy once and have RadarNow! premium on all your devices too.

RadarNow! Standard will automatically switch to RadarNow! Premium for free if your local radar site is off line so you can select another radar site.

RadarNow! is designed to be fast, efficient and have great free options. If you want a full featured weather app that shows things like ski conditions or tide reports, we suggest using WeatherBug or Weather Channel. RadarNow! Standard (Free) provides animated radar, local conditions and NWS Alerts centered on your current location. Radar Now! Premium provides the same but allows you to select other radar sites as well as provide more zoom levels, range rings, selectable locations and a pannable map of the continental US with a looping weather radar.

RadarNow! uses US radars only, therefore is active for entire U.S., Puerto Rico, Guam and areas of Canada, Mexico and the Caribbean that border the U.S.

Battery is used ONLY when RadarNow! is active, otherwise RadarNow! has no effect on battery life. RadarNow! uses GPS and network location services to fix your location. If location services aren't available, Zip Code can be used with RadarNow! to set location.

This new version of RadarNow! was created by USNaviguide in cooperation with Mighty Pocket.

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Avare

Charts and data currently available for all the US including PR, plus some parts of Canada, Mexico and the Caribbean.

Avare (pronounced "Av Air") is a free moving map aviation GPS app from Boston for aviators. It features GPS status, online or offline moving map & browsing of all FAA VFR Sectionals (including AK/HI/PR), IFR low and high level enroute, Approach Plates, WACs, TACs, A/FD info, Airport Diagrams, Terrain/Elevation Maps, Terminal Procedures, 50 Nearest airports, METAR/TAF, TFR graphics, GPS Taxi, Obstacles, and more. Completely Free with no ads!

Optional donation requested. ***Notice: This is not an FAA certified GPS.***

Avare Advantages:

- * Made by and for pilots
- * Easy to learn & use
- * Quick and responsive
- * Runs on almost any Android device
- * Free App, Databases, Charts, A/FDs, and Terminal Procedures
- * No ads
- * No invasive permissions
- * If you ever wished for free smart FAA materials on your tablet, phone or other Android device, right now is the time to Install Avare.

Main Features:

- * On or offline GPS moving map FAA Sectionals, WACs, IFR low and high enroute, TACs, Terminal Procedures, and Airport Diagrams with GPS Taxi using internal or external GPS.
- * All FAA IFR Approach Plates
- * On or offline browsing of charts with or without GPS.
- * GPS ground track bearing, speed and altitude.
- * GPS distance, track line, and Time to any airport.
- * Nearest Airports (with wx color code), touch to select.
- * Simple flight plan
- * Long-press any airport on chart or type in code to select as Destination.
- * Type in any address and fly to it via coordinates.
- * METAR & TAF: long-press airport on chart (Internet required).
- * TFRs: Graphical TFRs (Internet required) and TFR text.
- * Terrain: USGS terrain maps.
- * Obstacles: All obstacles taller than 500 feet AGL at or 200 feet below your MSL will be displayed when enabled
- * Radio frequencies, runways, fuel availability, & other A/FD info.

- * Landscape or Portrait display mode, North Up or Track Up.
- * Touch any two points on chart for approximate distance between them.
- * GPS compass direction, Bearing, and Distance to and FROM any point on the map simply by long- pressing one finger on that point. Great for your ATC and CTAF radio calls.
- * Avare includes A/FD info but no charts in the app Install, so that you can then choose individual charts for Avare to Download free at any time. After installing or updating Avare, be sure to access the Download feature to ensure the Database is up to date and that at least one chart is installed, and use the Get button if needed.
- * Avare works on any device running Android 2.2 and newer. Note: Please see our apps4av.com website (you can use our Developer link here) for Manual Install instructions if you're unable to install here on the Play store.
- * In addition to a Nexus 7 and other recent model devices, we test new releases on a first-gen phone running Android 2.2. The fact that Avare is designed to run fine on a minimal early phone means that on newer devices it's even more responsive and easier to use. With a 4" or larger screen Avare is much easier to use and read than a paper chart or similar size FAA certified GPS. An inexpensive external GPS will improve reliability and accuracy (including WAAS) on most devices, and some users prefer the larger screen area of a tablet device.
- * After you Install Avare, please use the Help feature and visit our [apps4av](http://apps4av.com) website for any news. New features are being added very quickly in response to user feedback and requests, so our documentation sometimes lags behind our innovation. We invite you to Contact us directly via our [apps4av](http://apps4av.com) site to share your feedback, questions and feature requests.

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FlyQ Pocket

Available exclusively to AOPA members, AOPA FlyQ Pocket for Android is the powerful flight planning app every pilot needs. It's brilliantly easy to use and astonishingly fast.

AOPA FlyQ Pocket is the result of a partnership between AOPA and Seattle Avionics Software. FlyQ Pocket combines the convenience of the AOPA Airports app with aviation weather and flight planning capability. FlyQ Pocket harnesses the legendary AOPA Airports database, putting FBO and aviation business information details only a tap away. Now you can plan a flight on your Android phone or tablet with an auto-router that wind-optimizes your flight to get you there as fast as possible. Victor Airways, GPS Direct routing, Jet Airways—AOPA FlyQ Pocket is ready for it all.

Using AOPA FlyQ is simple because all major functions (Airport and FBO Information, Weather, and Flight Planning) are always just a tap away. FlyQ. Fly Smarter.

This app is verified for touch screen usage only at this time. Slide out keyboards are not currently supported.

AOPA FlyQ for Android may function differently across various devices and Android versions. Ongoing device testing is in progress.

Airport Information

Start AOPA FlyQ and within seconds it finds the nearest airports and displays details about them—without even tapping a button. Want more info about an airport? Tap the airport and all the details you need appear instantly. On the first airport page, you immediately see operational information, runways, navaids, and an embedded satellite map image of the airport. Want to call the local ATIS? Tap the phone number and your phone quickly connects you. Tap the weather tab and see the current temperature and sky conditions, a Nexrad radar image of the area, the nearest METARs and TAFs, winds-aloft, and even an official DUAT weather briefing. All with just one tap. One tap zooms the METARs, TAFs and weather graphics to full screen, large font versions that anyone can read—even in turbulence. Another tap gives you an easy-to-read 7 day forecast. Quickly find the FBO details you need—fuel information, telephone numbers, rental cars, nearby attractions and more.

Weather Information

Want to see what the weather is like at your current location? Tap the Weather tab and AOPA FlyQ instantly locks on to your GPS position and displays temperature, Nexrad images and local METARs and TAFs. Or choose from a large gallery of US and Canadian weather graphics, many of which are animated. Quickly check the weather anywhere on the globe by entering an airport identifier, city name, even a zip code. Of course, AOPA FlyQ keeps track of your recent selections for quick future access and stores graphics and METARs/TAFs on the phone so they're available even when you're not connected to the Internet (such as in flight).

Flight Planning

No time to plan a flight? Give us 30 seconds and watch AOPA FlyQ assemble the perfect wind-optimized flight plan between any two US airports. Tell AOPA FlyQ where to depart, where to land, and how to fly there (Victor airways, Jet Airways or GPS Direct) and AOPA FlyQ plots the whole course including all the navaids and intersection—not a simple straight line. It even uses the winds-aloft forecast to give you the ideal altitude for each leg of your trip. To make your life easier, AOPA FlyQ automatically requests an official DUAT weather briefing so you're good to go. And since filing the flight plan takes one tap it's easy and quick to fly safely. AOPA FlyQ remembers your recent flights and home airport so you can often plan a flight by picking from a list of recently used airports rather than typing.

Moving Map and Approach Plates

AOPA FlyQ Pocket does not include a moving map or approach plates because it's designed for pre-flight planning rather than in-flight use.

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BBFlight Flight Instruments



Description

Gyro Attitude Indicator and other key flight instruments on your Android. Key features:

- Gyro Attitude Indicator, with auto-calibration and auto-leveling. For devices without gyro sensors, attitude is derived from GPS. Indicator shows extreme attitude chevrons to guide you back to a safety if you find yourself in an unusual attitude
- "Glass cockpit" Primary Flight Display using digital tapes for Speed, Altitude, Heading, Vertical Speed and Rate of Turn
- Position relative to nearest airport in plain English (convenient for ATC position reports), with a global database of 23,000 airports, including tower frequencies
- Automatic Flight Timer
- Fully configurable display, in portrait and landscape mode
- Choice of imperial or metric units

Provides pilots with a backup for their artificial horizon, airspeed indicator, altimeter and compass on a modern PFD.

Continuous Adaptive Auto-Calibration adjusts the gyro for sensor drift as a result of temperature, engine vibration and sensor errors, and a Kalman filter combines input from multiple sensors for better attitude stability.

For correct indication, the device needs to be placed vertical, with the screen facing the pilot, but aligned with the axis of flight (i.e., not rotated for better viewing). Level the attitude indicator by tapping the center at any time.

If desired, choose 'Use GPS for attitude' to force GPS-derived attitude indication (ignoring gyro sensors). NOTES:

Sensors are optimized for use in flight, and will show dip and bank at slow speeds (e.g. in a car).

Upon start-up, the tapes will show red X marks to indicate that no reliable GPS signal is available. Once a reliable GPS signal has been captured, speed and altitude tapes will show. If attitude is derived from GPS, the attitude indicator and heading tape will show once moving at a speed of greater than 10 kts. A reliable GPS signal may not be possible indoors.

The frequency of GPS updates varies considerably between devices. The age of the last GPS fix is shown when >3s, to warn that the GPS data is old. All indications are not reliable when the GPS data is old.

Air data is derived from GPS, and therefore only an approximation of actual air speed, altitude and heading (and attitude for devices without gyro sensors). Do not use for primary navigation or attitude reference. You assume total responsibility and risk associated with this application.

Most devices have accelerometer sensors, but this is not the same as gyro sensors. Gyro attitude is only possible with gyro sensors, so please check your device documentation to confirm you have gyro sensors. If not, Flight Instruments will derive attitude information from the GPS, which is still very useful in flight, but not as smooth and accurate as gyro indication.

DISCLAIMER: This app is not FAA approved and should not be used for primary navigation. All information is presented for reference only. You assume total responsibility and risk associated with this application

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Apps For Aviators In-flight Instruments

Description

Attitude Indicator, Heading Indicator for devices equipped with Gyroscopes; for example, Nexus-7. On other devices where a gyroscope is absent, there will be abrupt changes to attitude and heading.

-- Does not work on Droid incredible X 4G.



Nathan Jovin's FlightTools E6B

Description

Performs all standard E6B calcs and then some.

- SM/Knot/Km Conversion
- C/F Temperature Conversion
- Pressure Conversion
- Ground Speed
- WCA
- Dewpoint/Humidity
- Density Altitude
- Fuel Consumption
- Runway crosswinds
- Wind Speed
- Time & Dist

Steven Dexter's Aviation Pocket Knife



Description

Aviation Pocketknife is an app with small tools for your flights.

Features:

- Unit Converter
- Crosswind Calculator
- Met Calculator
- ~ Min useable Flight Level
- ~ Deviation from ISA
- ~ Density Altitude
- ~ Relative Humidity
- Navigation Calculator
- ~ Wind direction / speed
- ~ Heading, Groundspeed, WCA
- ~ Course, Groundspeed, WCA
- ~ Non Precession Approach Calculator
- Airport Information with weather, Google map (you need IATA / ICAO dictionary for it)
- Notams
- Weather query (NOAA)
- Snowtam Decoder
- Aviation abbreviations
- Volmet Frequencies (Europe and North Africa)

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Steven Dexter's IATA / ICAO Dictionary

Description

Offline aviation database for IATA/ICAO codes.

This app contains the IATA/ICAO codes for airports (over 11.000), aircraft and airlines (over 5.000). After the first start you will be asked if you want to create the database. The database will be created offline.

You don't need to be online.

I can't answer to the remarks. If you have problems please write me a mail. I will do my best to fix it. More screen shots and information at: <http://ftdevelop.priot.com/index.html>

Features:

Airports Information:

- Name, Elevation, coordinates, time zone, Runway,

Communication

- download of Metar/TAF reports

-NOTAM download

- Decoder for Snowtams NOTAM)

-sunrise/sunset

- airport indication with Google maps

-airport in the vicinity function. Is searching for airports in your vicinity. (GPS or network required)

-distance calculation

FAA charts for U.S. airports

- downloadable for offline use

Fleet Information (online connection (required)

- get fleet information from several airlines (how many aircraft per type, registrations, etc.) NavAids

Airline Codes

Apps For Aviators IFR & General Aviation Timer



Description

A simple ad-free timer for Instrument pilots, also useful for all pilots and as a simple household timer. Basic functions include:

Count down timer in seconds.

- Count down in degrees ("S.Rt.") for Standard Rate turns, useful in making a 180 degree turn for example.
- One minute punch in for hold patterns.

- Option to use any phone button to start/stop.

- Vibration alert.

- Tone alert.

- Maximum time out of 100 minutes.



Idea Matters Sensor List

Description

List all sensors available on the device along with their current values and a plot to display their changes over time. Including accelerometer, magnetic field, orientation, temperature, light...

Version 3.5 added support for battery status (temperature, voltage and percentage), sound level and signal strength!

Perfect for showcasing capabilities of your new phone, as well as hardware diagnostics after you have gone through a system update or repair. And it's a must have development tool when you develop applications that uses these sensors.

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Dierk Reuter's GPS ILS

Description *VFR flight ONLY!!!*

- (1) voice vertical guidance into any airport. This helps flying consistent & safer short field VFR approaches into runways with no vertical guidance.
- (2) Virtual Flight Instructor: improve your flying with feedback on every flight.

How does it work? (reference 1st App Screenshot)

- *Connect Phone audio to headset, adjust audio volume
- *Select desired approach
- *Identify "Green Arrow" in HSI and turn aircraft to Top of Descent. (67 deg)
- *Localizer bar is "red" indicating that loc is past the right limit.
- *Localizer will turn "yellow" once in range
- *White Arrow" in HSI is the direction of touchdown point. (60 deg)
- **Yellow Arrow" in HSI is the direction of final approach course. (37 deg)
- *Descent to "TOD altitude" (top of descent) using aircraft altimeter as reference

- *Press "Calibrate" once aircraft has reached TOD altitude,
- *Now a GREEN glide slope bar will appear and be centered
- *In example we just calibrated, hence "green" GP is centered.
- *We are 4.5 miles from TOD and the synthetic ILS GP in "yellow" is coming down
- *YELLOW ILS glide slope and the GREEN TOD glide slope will merge at TOD
- *Passing the TOD turn to the final approach course shown as "yellow" arrow
- *Descent with the YELLOW ILS glide slope
- *Voice will announce: "50 up", "Center", "Down 100"
- *Send Log after landing, consider connecting via Wi-Fi
- *Examples and details at: http://www.reuter-family.com/gpsils/GPSILS_Details.pdf

Watch the example video of on an actual ILS: www.youtube.com/watch?v=85AdUUD-kZw

We are approaching the localizer on a 125 heading and a TOD altitude of 1200ft. We are about 60 ft. too low. The Green, White and Yellow arrows show the direction to the TOD point, the touchdown zone and the approach course respectively.

As the localizer comes in we turn to 207 for the intercept.

As we approach the TOD the Green and Yellow GP merge. The green arrow swings around to the left indicating that we pass TOD on the right.

The decent with the GP starts. The white arrow is now hidden behind the yellow arrow. The TOD is now behind us and hence the green arrow is pointing to our 6 o'clock position.

The voice announcement are suppressed. However you can see the announcements in the upper left of the phone screen. "Up 80" for example. The app shows an altitude of 510 ft. at touchdown. According to the charts the runway is at 517 ft.

Once we pass the touchdown zone the white arrow moves to the 6 o'clock position.

Note, we used an external Bluetooth GPS on the glare shield with a 5 Hz update frequency. Any change in color of the "accuracy" field indicates a new GPS data point. CAUTION, usage of the internal phone GPS may materially reduce the accuracy.

A video comparison of the app to an actual ILS: <http://www.youtube.com/watch?v=TGLHkozNBRw> A video with audio announcement for altitude correction: www.youtube.com/watch?v=P_OIISD3xg A video showing Courchevel (LFLJ) approach: www.youtube.com/watch?v=uNFNFZq2BFY

The app asks for the pilots e-mail address. The address is attached to log files and makes it possible to send comments back.

Privacy is ensured. Upload/download of data may best be done when connected to internet via Wi-Fi. The data stays private.

To add more approaches drop me an e-mail or press the request button on the phone. Additional approaches can be down loaded from "Menu->Download Approaches".

Comments to: dierk@reuter-family.com Disclaimer: The software and data is as is. The author assumes no responsibility or liability either directly or indirectly.