



Runway 15



The Monthly Newsletter for EAA Chapter 1541, Lincoln, California

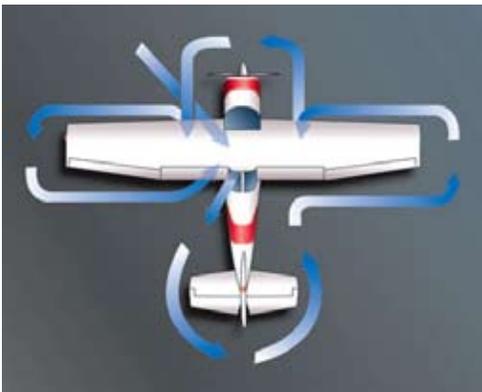
January 2017

Briefing Strip

• Chapter dues of \$20 (per calendar year) are now due for 2017. Members can pay using PayPal, with check or with cash. Dues are tax deductible since we are a 501[c]3. See Jim Hughes to pay your dues, or go to the chapter website to pay via PayPal.

• As has become the chapter tradition, the January and February chapter meetings are being held at Cattleman's Restaurant in Roseville. The January meeting will be on **Wednesday, January 18** at 18:00 with dinner available (but not required). Marty Maisel will provide the meeting's presentation about Billy Mitchell, the visionary military aviator.

• The 5th wheel travel trailer that was donated to the chapter in December was sold as a fund raiser, with the proceeds from the sale going into the chapter's general fund. Thanks much to the donator and buyer.



Calendar

Wednesday, January 4: Chapter 1541 Board of Directors meeting Pizza Roundup, 2270 Nicolaus Rd., Lincoln. Dinner at 18:00; meeting at 18:30.

Saturday, January 7: EAA Chapter 1541 Pancake Breakfast and a Movie, 08:00-10:00.

Thursday, January 5-Sunday, January 8: EAA Tri-Motor tour stop at KMYV.

Saturday, January 7: EAA Chapter 1541 Pancake Breakfast, 08:00-10:00.

Saturday, January 7: Sutter County Airport (O52) Open Hangar Day.

Wednesday, January 18: Lincoln Airport Committee Meeting, 10:00 am in the First Floor Meeting Room at Lincoln City Hall, 600 6th Street, Lincoln.

Wednesday, January 18: EAA Chapter 1541 Member Meeting at Cattleman's Restaurant, Roseville; 18:30.

Saturday, January 21: Lincoln Airport Aircraft Display Day, 08:00-12:00.

Sunday, January 22: Rancho Murietta (RIU) Historic Aircraft Display Day, 09:00-13:00

Wednesday, February 1: Chapter 1541 Board of Directors meeting Pizza Roundup, 2270 Nicolaus Rd., Lincoln. Dinner at 18:00; meeting at 18:30.

*For the most up-to-date information, go to the website
<http://eaa1541.org/>*

Newsletter Contributions

Please help make this newsletter better by contributing stories and photos that might be of interest to other chapter members. Perhaps where you flew, what you are building, or what you know about something. A few short paragraphs and a photo or two of your project or travels would be a great contribution. I'll take care of the rest. Please email me (Scott Thompson) at sthompson@aerovintage.com or call me at 916-716-3442.

Tidbit from the AIM

2-1-9. Pilot Control of Airport Lighting

Radio control of lighting is available at selected airports to provide airborne control of lights by keying the aircraft's microphone. Control of lighting systems is often available at locations without specified hours for lighting and where there is no control tower or FSS or when the tower or FSS is closed (locations with a part-time tower or FSS) or specified hours. All lighting systems which are radio controlled at an airport, whether on a single runway or multiple runways, operate on the same radio frequency.

Wants and Disposals

Wanted: Things to list here that members want to find or want to get rid of. Please advise of the item and contact information via email to sthompson@aerovintage.com. One email gets one entry for one month here.

Chapter Information

Meetings:

Usually the third Wednesday of each month held at KLHM Hangar S-12. Details available at the website.

E-mail:

lincolneaa@hotmail.com

Website:

<http://eaa1541.org/>

Mailing address:

EAA Chapter 1541, PO Box 1126, Lincoln, CA 95648

Chapter Hangar:

Hangar S-12, Lincoln Airport

Chapter Officers

President:

Ron Wright (ronpw@hotmail.com)

Vice President:

Tony Kasabasich (tonykasabasich@yahoo.com)

Secretary/Treasurer:

Jim Hughes (jim.hughes1@att.net)

Chapter Board of Directors:

Bruce Estes

Tom Lieb

Bob Miller

John Perry

Bruce Robinson

Dug Smith

Bill Wootton

Webmaster:

Dug Smith

Newsletter:

Scott Thompson (916-716-3442)
(sthompson@aerovintage.com)

Membership:

Open to all. Chapter dues: \$20 per year.

President's Corner

Knowledge plus skill plus passion equals art

What kind of pilot are you? Do you fly ultralights, or an experimental home built, or a high performance single or multi? It is fairly certain that what you fly is a clue to what kind of personal challenge or objective you might desire in yourself and from flight. From such extremes as the cross country business traveler to the ultralight pilot that prefers to fly no higher than the tree tops, we are all different. As different as we may be, the answer to the question "Why do you fly?" is the same across the board. Those answers include the following: Freedom, Peaceful, Solitude, when I fly my mind is clear of all other thought, challenging, and for many it is even spiritual. There are few things in life that can provide so much to offer in so many ways.

No matter what type of flying you enjoy we all share the same emotions for and from flight, but unlike other activities in life, becoming a good pilot requires a good amount of study and practice. It is not just given it is earned.

Knowledge: No matter what level of flying we do, there is a knowledge component associated with it. For some it could be only a few months and for others it requires a lifetime of study and practice. Furthermore, the knowledge element is never complete.

Skill: Skill is not given. It seems that there are some that might seem born to fly like the late Bob

Hoover, but even Hoover had to start somewhere. He, like all of us, developed skill from a lifetime of practice through repetition. Or, as Luther Burbank put it, "it is repetition, repetition, repetition that habituates the skill." If we are to become a skillful pilot, it will require an acceptance that we will never know it all, However, we will always strive for it.

Passion: Outsiders might believe that such a long term commitment to become a good pilot as too much work. But, when the passion we feel is mixed with the benefits we receive from flying, the thought of work does not enter our mind. Our passion drives our actions and what otherwise might feel as hard work becomes a joyful path of discovery. That discovery is not just an attainment of knowledge but it is equally a personal discovery of ones self through discovering our own limits. Karate master Masutatsu Oyama said, "One becomes a beginner after one thousand days of training and an expert after ten thousand days of practice."

Art: The art of flying I believe is mostly a personal definition. If we pursue our personal limits with the blend of passion skill and knowledge we will be on the path of the "ten thousand days of practice" and that is a form of personal artful expression. Through the blending of all of the above we discover that flying can be raised to a level of Art and that also gives us an artful way of living.

Ron Wright
President EAA
Chapter 1541

Next Chapter Meeting on Wednesday, January 18

The January chapter meeting will be held on Wednesday, January 18, at the Cattleman's Restaurant in Roseville. Dinner is available as an option. Marty Maisel will provide the meeting's presentation about Billy Mitchell, the visionary military aviator.

Born into a wealthy and politically connected family, Billy Mitchell enlisted as a private in the Army during the Spanish-American war in 1898. He rapidly advanced and, by the end of World War I, was elevated to Brigadier General in the role of Chief of the Air Service, Third Army. Mitchell became an aggressive advocate of aviation and showed his disdain for superior officers who did not share his view

of the potential value of air power. He was also considered a bit of a crackpot for predicting in the early 1920s that Japan would attack the U.S. Naval Base at Pearl Harbor, Hawaii.

These actions resulted in his demotion and assignments to obscure posts, far from Washington D.C., to keep him away from the seat of military power. When the dirigible Shenandoah crashed, his public accusation of the U.S. Military Brass of incompetence led to his famous Court Martial. It was only after his death that Mitchell's forecast of the importance of air power and the threat to American security in the Pacific were considered to be valid.

2016 Holiday Party

Text and Photos by Bruce Estes

Well, this one is in the books. And if you missed this year's EAA Holiday Party, you really missed out. Ninety-five people attended at Cattleman's Restaurant in Roseville. Many participated in the silent auction, some danced, but EVERYONE had a great time. We combined the Lincoln chapter and Auburn's Chapter 526 for the party and had a blast.

Bill and Jodi Wootton did a fantastic job organizing this year's event. We've got some ideas to make next year's party even better. So, make sure you attend next year's Holiday Party.

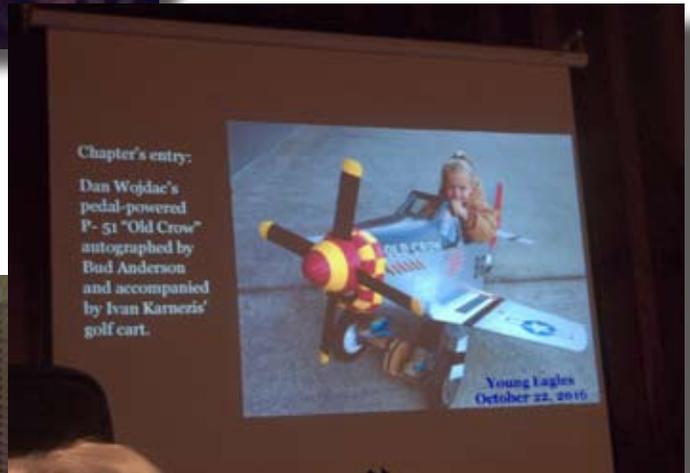
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"It was a real winner"

Stan Kisby, Chapter 1541

"My wife had the best time of any EAA party she has attended, ever. She loved the silent auction and the live music" *Ivan Karnezis, President of Auburn Chapter 526*



"One of the best parties we've had. My wife loved it."

Dick Rupe, Chapter 1541

"I love that the chapters could intermingle." *Tony Wright, Secretary of Auburn Chapter 526,*

"As a member of both the Auburn and Lincoln EAA Chapters, it was the best party for each we've had in years. It was great to mingle and see people catching up on what the other chapter has been doing. We need to do a lot more together." *Brent Smith, Chapter 1541 and 526*

Some Tips For Flying to the San Francisco Bay Area

by Bruce Estes

I am often asked for tips in flying to the Bay Area. I fly to San Carlos generally once a month for business, learned to fly in Palo Alto, and based my Cardinal at San Carlos for 11 years. I am NOT a CFI.

First, flying to the Bay Area under the SFO Class B airspace is not difficult IF you do some planning. Second, you don't have to use your radio until you get to your destination, but you will save time if you use flight following.

If you go GPS direct from LHM to SQL, your course takes you through Sacramento International's (SMF) Class C airspace. I generally request flight following immediately after leaving the Lincoln traffic pattern. Dial up 127.4, call NorCal Approach, tell them who you are, where you are, and what you want. They will give you a transponder code. Once they radar identify you by using your N number, you are automatically cleared into Sacramento's Class C airspace. You are on your way. You will get about four or five radio handoffs between LHM and SQL. If you go direct to San Carlos, you will pass thru Hayward's (HWD) Class D airspace. If using flight following, NorCal will keep you above Hayward's airspace and below the SFO Class B airspace. Sacramento International and Hayward are the only two airport areas you will pass thru or above if you go direct. (Editor's note: The radar controller working you becomes responsible for coordinating any penetration you may make of Class C or D airspace.)

If you don't want flight following, you can navigate around SMF and HWD by navigating to VPCOY (a visual reporting point- Coyote Hills). This waypoint is on the charts. Your path from Coyote Hills, towards SQL takes you a little north of the Dumbarton Bridge Toll Plaza. Get SQL's ATIS and call SQL tower when you are at the shoreline, just north of the Toll Plaza. SQL's tower will tell you to call them again when you

are at the Cement Plant (VPWFR on your chart) if they are using Rwy 30, which is the usual runway in use. This sets you up for a right base entry to Rwy 30. If they are using Rwy 12, the tower will direct you to the KNBR radio antenna for a left base into Rwy12. Again, KNBR is on your chart.

Another popular airport to fly to is Half Moon Bay (HAF). On a clear day, HAF is BEAUTIFUL from the air. I used to take passengers for their first flight from SQL, over the top of HAF, on up the coast past Daly City, showing the passengers the Golden Gate Bridge from the air, and returned by the same route to SQL. My passengers were ALWAYS impressed. You can even land at HAF for breakfast or lunch at the airport restaurant, or park at the south end of the airport by the gate, and take a short walk to Princeton where there are several restaurants and shops. When you call SQL from the East Bay shoreline, tell SQL that you want a VFR transition thru their airspace on your way to HAF. The SQL tower will accommodate you in a friendly way.

So, flying to the San Francisco Peninsula (SQL or PAO) or on to HAF is not difficult IF you study your chart and do some pre-flight planning. The SFO Class B airspace is clearly marked on the chart, and step downs are easy to negotiate. If you get distracted and forget to descend, NorCal Approach will tell you to descend. I never even ask for a Class B clearance. It is not necessary for the above flight. So, don't be afraid of this flight. I hear a lot of rookies on the radio and NorCal will work with you, IF you listen for your call sign and do what they ask. Generally, there is nothing to do except fly your pre-planned course.

If you have questions, please call me at (650) 504-4464 or email me at brucee7837@aol.com.

Member Spotlight

Text and Photo by Bruce Estes

Every EAA chapter needs a **Jim Hughes**. Jim joined EAA Chapter 1541 a couple of years ago, then joined the Board of Directors, then was elected Treasurer, and then took over the Secretary's duties (in addition to the Treasurer's duties) when the Secretary position became open. Yes, every chapter needs a Jim Hughes.

Jim grew up in a rural area east of Buffalo, New York, and, as a child, enjoyed the outdoor life, especially anything with motors. Jim built mini-bikes and go-karts, and raced them around a 1/8 mile track in Jim's back yard.

He graduated from the state university of New York with a degree in electrical engineering, and then went to work as a design engineer with Control Data Corp. Jim moved to California in 1977 when he went to work for Dataproducts. Jim then joined Xircom, Inc., which was eventually bought by Intel Corporation. Jim holds four patents for electrical motor control, laser marking, and thermal management. He retired in 2003.

Jim started flight training in 1993 at Camarillo flying Cessna 152's. After forty hours, Jim had to put his flight training on hold because of kids in college and his mortgage. That changed when Jim moved to northern California in 2006 and joined the Beale Aero Club in 2008. He got his Private Pilot's License in 2009. He emphasizes that the Beale Aero Club trains pilots using USAF guidelines and uses a very disciplined approach. Jim came to appreciate the Beale Aero Club's approach. In 2010, he joined three co-owners of a Cessna 175, which he now flies out of Lincoln Airport.

Jim has worked with John Henry since restarting flight training. So, after eight years of

troubleshooting electrical issues on Aero Club aircraft, his own Cessna 175, and others John was working on, he's acquired a lot of knowledge on aircraft electrical systems.

As you might have figured out by now, Jim likes a disciplined approach to many things. He organized the ground crew for our chapter's Tri-Motor event in 2015. The Tri-Motor crew said that EAA 1541's ground crew was one of the best they



had experienced and that was one of the reasons that the Tri-Motor was able to complete as many flights for our chapter.

Other accomplishments of Jim's are running the Los Angeles Invitational Marathon in 1983 and completing himself with a time of 2:37. That's over 26 miles, averaging 6 minutes a mile. For those of you who are not runners, this is very fast.

As a fellow 1541 board member, I have the privilege to see Jim's work at the monthly board meetings. Jim has taken EAA 1541 to a higher level of professionalism with his work on budgets, reporting of income and expenses, keeping the roster current, along with many other items. We all owe Jim a big "THANK YOU" for your work for EAA 1541.

Easy ADS-B (IN)

by Dug Smith

I'd decided that I wanted a moving map GPS in my aircraft, and the little tiny black and white Garmin wasn't cutting it. Having upgraded from a 2013 Google Nexus tablet, I decided to use that. It has a built in GPS receiver, and the 7" screen isn't so big that it gets in the way on the panel. It's also light enough that I can attach it with Velcro, and the internal battery lasts for hours. I downloaded the Avare app (<https://play.google.com/store/apps/details?id=com.ds.avare&hl=en>), and pulled in the local maps. The app itself is very configurable, and you can set up flight plans with it.



You should use the download feature every time you fly, as it will pull in available TFRs - you can see it's got the standing Beale up to 18,000' TFR marked in red.

I flew with the moving map for a while, but after seeing the EAA's cheap ADS-B article, using a WiFi connected Raspberry Pi ([https://www.eaa.org/en/eaaviation-communities-and-interests/homebuilt-aircraft-and-homebuilt-aircraft-kits/resources-for-while-youre-building/building-articles/instruments-and-avionics/live-weather-and-traffic-for-less-than-\\$120](https://www.eaa.org/en/eaaviation-communities-and-interests/homebuilt-aircraft-and-homebuilt-aircraft-kits/resources-for-while-youre-building/building-articles/instruments-and-avionics/live-weather-and-traffic-for-less-than-$120)), I started looking into

setting up ADS-B "IN" with my tablet. As it has a micro USB port, I didn't see the need for a whole extra computer.

Looking into it, Avare supports external software plug ins via an extra add-on app (<https://play.google.com/store/apps/details?id=com.apps4av>.

[avarehelper&hl=en](https://play.google.com/store/apps/details?id=com.apps4av.avarehelper&hl=en)), and there's an app that will add in the ADS-B data (<https://play.google.com/store/apps/details?id=bs.Avare.ADSB&hl=en>). This is great for testing, but it needs to be restarted often as it's only a trial. Once I had got it all working, I went ahead and got the full version, which doesn't need to be restarted (<https://play.google.com/store/apps/details?id=bs.Avare.ADSB.Pro&hl=en>).



Having decided on the software, the first thing I looked into was the software-defined radio that actually collects the ADS-B signals. The guy who wrote the ADS-B software suggests the NooElec Mini 2, and that was a good enough recommendation for me (https://www.amazon.com/NooElec-NESDR-Mini-RTL2832-Antenna/dp/B00P2UOU72/ref=pd_lpo_504_tr_t_3). One thing to be aware of is that the antenna has a magnetic base, and it caused interference with my compass. If you remove the black sticker on the bottom, you can just take the magnet out (it's just stuck in magnetically, and I was expecting to have to cut it out). I've extended the antenna and zip tied it to an out of the way strut.

A short on-the-go (OTG) cable (something such as <https://www.amazon.com/Micro-USB-OTG-Adapter-Cable/dp/B00D8YZ2SA>) can be used to connect the SDR to the tablet, and we're off to the races.

Unfortunately, there are two different frequencies. 1090 MHz ES (Traffic) can be very easily received, but is generally only used by the bigger guys who go above 18,000', and 978 MHz UAT (Traffic / Weather), which tends to not pick anything up from the ground. I use 978MHz, but have yet to be flying in anything like weather that will show up on the map.

ADSB Pro shows the flight details for the aircraft it can see, but who cares about that, we want it on the map. Here's Southwest 755 coming out of Sacramento, heading roughly southwest at 6750' (pressure altitude). You can tell by the length of the blue line that he's moving pretty fast (the list above shows 311 mph ground speed).



ICAO	Flight	Category	Alt (ft)	Heading	Knots	GS (mph)	Squawk	Lat
aaad2			5350	125	271	311		38.1

You're powering the SDR from your tablet, so that affects the battery life (you can get OTG cables that you can also plug into power, but that seems unnecessary to me). I run my tablet in airplane mode to turn off the WiFi and Bluetooth radios, and that helps.



As I already had a tablet lying around, my total cost was around \$30, but you can pick up cheap tablets new, just make sure they have built in GPS.

A Brief History of the People Who Created the Light Aircraft Industry in the U.S.

by Martin Maisel

(photos used with appropriate permission)

Part 3 Lloyd Stearman

Lloyd Carlton Stearman was born in 1898 in Wellsford, Kansas. After graduating from high school in nearby Harper, Lloyd enrolled at Kansas State College (later renamed Kansas State University) in Manhattan, Kansas, to study engineering and architecture - but left in August 1918 to enlist in the U.S. Naval Reserve Flying Corps. After completing ground school in Seattle, Washington, he was transferred to Naval Air Station North Island at San Diego, California, where he received flight instruction in Curtiss N-9 seaplanes



Curtiss N-9H Seaplane

(Image is in the Public Domain in accordance with https://commons.wikimedia.org/wiki/File:Curtiss_N-9_seaplane_in_flight_1920s.jpeg)

When the World War ended, Stearman was released from his military duties before he could earn his wings and he returned to Kansas in December 1918. Stearman briefly ran an electrical repair shop in Harper but moved to Wichita to accept employment with an architectural firm. Still interested in aviation, in 1920 he landed a job as a mechanic for the E.M. Laird Aviation Company that was building the Laird Swallow airplane. As the company grew, having delivered nearly 40 Swallows by 1923,

Stearman was rapidly promoted - first to foreman in the Assembly Department, then to Senior Draftsman, and before long, Assistant Engineer. With the stability of a secure job, Lloyd married his high school sweetheart Ethyl Trusty. However, job stability did not prove to be one of Lloyd Stearman's virtues.



Lloyd C. Stearman

(Jerry Lips @ AirportJournals.com)

Stearman's piloting experience was quite limited at the time he joined Laird, so fellow employee Walter Beech helped him improve his flying skills. Stearman took to the air every chance he got and, with Beech's instruction, he became a proficient pilot. At the same time he was also advancing his knowledge of aeronautical designs.

The financier behind the E.M. Laird Aviation Company was Kansas oil tycoon Jacob "Jake" Mollendick. Because of escalating business disagreements with Mollendick, Matty Laird elected to sell his stock and surrender to Mollendick all rights to the Swallow airplane. Laird then moved to Chicago and founded a new airplane company with a similar name, the E.M. Laird Airplane Company. The Wichita Laird company was renamed the Swallow Airplane Company in January 1924 and was under Mollendick's full control. Lloyd Stearman was appointed as the Chief Engineer of the new Swallow company.

Stearman was directed to design improvements to the company's product and, by the spring of 1924, the New Swallow was being flight-tested. The New Swallow incorporated many innovative features including a fully enclosed engine, an auxiliary fuel tank and a wider front cockpit.



SIDE VIEW OF "NEW SWALLOW" SHOWING HOW PERFECTLY THE SWALLOW IS STREAMLINED. NOTICE THE MOTOR IS COMPLETELY COWLED MAKING MINIMUM FRONTAL RESISTANCE

The New Swallow

(Wichita Photo Archives, <http://www.wichitaphotos.org>)

While the New Swallow was popular among America's sport pilots, Stearman and Walter Beech tried to persuade Mollendick that the aircraft could be further improved by replacing the wood fuselage and empennage with a welded steel-tube structure. Mollendick curtly rejected their proposal. The relationship between Mollendick and the two young employees rapidly deteriorated and, in late 1924, Stearman and Beech left Swallow to form their own aircraft company.

Seeking business leadership as well as technical and financial support, they teamed with Clyde Cessna, a well-known local aviation figure. Cessna had not been actively involved in aviation for about six years, but the prospect of developing new aircraft intrigued him. With Cessna and other financial backers in place, the Travel Air Manufacturing Company was incorporated in February 1925.

Stearman, now chief engineer of Travel Air at the age of 25, designed the company's first airplane – a three-place biplane. The Travel Air 1000 prototype was designed to carry air mail and two passengers. The production models based on that aircraft was designated as the Travel Air 2000. As sales grew, Stearman modified the aircraft with higher horsepower engines and other improvements to meet customer demands. These aircraft were labeled the Travel Air 3000 and 4000. By 1926 Travel Air was established as a leader in the manufacture of light commercial aircraft.

In October 1926, Stearman was lured away from Travel Air by Travel Air salesman Fred Hoyt. With the promise of funding and the prospect of leading a company that would build planes of his own design, Stearman moved his family to Venice, California, in October 1926. He established the

Stearman Aircraft Company in early 1927, but financial backing turned out to be inadequate and within a year the company was on the verge of collapse. Wichita businessman Walter Innes Jr., a key player in raising capital for the city's developing aircraft industry, persuaded Stearman to move his company back to Wichita with initial funding of \$60,000.

In late 1927, production of the Stearman C2-B began in a factory five miles north of Wichita to help meet the orders that could not be filled in California. Demand for the C2-B and, later, the C3-B accelerated through 1928 and the rate of aircraft rolling off the production lines was increased to meet the market's needs.



Stearman C3-B, flown by the U.S. Department of Commerce

(Image is in the Public Domain in accordance with https://commons.wikimedia.org/wiki/Category:Stearman_C3#/media/File:Stearman_C3B_ofh_the_U.S._Department_of_Commerce_in_11929.jpeg)

As the economic turmoil of the Great Depression set in, Stearman Aircraft became a division of the United Aircraft and Transportation Corporation in 1929, with Lloyd Stearman continuing as president of the Stearman Division. At the time, the United Aircraft and Transportation Corporation consisted of Varney Airlines, National Air Transport, Pacific Air Transport, Boeing Air Transport, Hamilton Aero (propellers), Standard Steel Propellers, Boeing Aircraft, Sikorsky Aircraft, Pratt & Whitney (engines), Chance Vought, and Northrop.

In 1930 the Stearman Division, seeking its first sale to the military, offered the Model 6 Cloudboy as a trainer for the U.S. Army Air Corps. The trainer, built in limited numbers, was designated the YPT-9. Two versions of the type, with different engines, were labeled the YPT-3 and the YPT-5.



Stearman Model 6 "Cloudboy", Army Air Corps YPT-9 trainer

(Image is in the Public Domain in accordance with https://commons.wikimedia.org/wiki/File:Stearman_YBT-3.jpg)

Four years later, the U.S. Government concluded that large holding companies such as United Aircraft and Transport were anti-competitive. By federal order United Aircraft was divided into separate companies with the western manufacturing interests folded into Boeing, headquartered in Seattle. Stearman, therefore, became a division of Boeing.

However, by the early 1930s the depression was dealing a devastating blow to the American aviation industry. Many commercial orders were withdrawn and layoffs began. Furthermore, by the summer of 1931, Lloyd Stearman had tired of United Aircraft's management style and decided to sever his connection with the company he founded.

The famous "Stearman" Model 75 trainer, of which over 10,000 were built during World War II, were actually Boeing-Stearman aircraft produced long after Lloyd Stearman left the company.

After leaving United Aircraft, Stearman moved his family back to California and joined with Walter Varney and Robert Gross to form the Stearman-Varney Aircraft Company in Alameda. Walter Varney served as a pilot in the U.S. Army Signal Corps during World War I and established an aviation school and air taxi service after the war. In October 1925 Varney was awarded one of the first contracts for private companies to fly the mail. In 1930 he sold the expanded mail and passenger service to the United Aircraft and Transport Corporation, and the airline's name was changed to United Airlines.

In 1932 the Lockheed Aircraft Company, hit hard by the effects of the depression, was near bankrupt and went up for sale. (The company was originally founded by brothers Allan and Malcolm Loughhead, but the spelling of the name was changed to the phonetic "Lockheed" to prevent mispronunciation). Allan Lockheed was interested in regaining control of the company, which at that time was held by the Detroit

Aircraft Corporation, but could only raise \$50,000 – an amount he felt was too small to make a serious bid – so he did not submit an offer. Walter Varney and business partner Robert Gross, however, offered \$40,000 and their bid won. Gross assumed the role of CEO of the new Lockheed Corporation and Stearman was appointed president.

Under Gross and Stearman, Lockheed set out to design a twin-engine all-metal transport, a significant gamble given the severe economic conditions of the time. They took on further risk by hiring relatively inexperienced young engineering and science graduates to accomplish that task. Among the new hires were Hal Hibbard and Clarence "Kelly" Johnson. The product of that work was the highly successful Lockheed Model 10 Electra. Much of the general design of that aircraft has been credited to Lloyd Stearman.



Clarence "Kelly" Johnson with an early Lockheed Model 10 wind tunnel model. Johnson determined that the early configurations did not have adequate directional stability, and added the "H" tail to address the problem.

(Image is in the Public Domain in accordance with https://commons.wikimedia.org/wiki/File:Kelly-Johnson_Electra.jpg)

Once again, Stearman felt the need to move on. In May 1935 he resigned from Lockheed and accepted a position with the Bureau of Air Commerce, a forerunner to the current Federal Aviation Administration. The next change in Stearman's career occurred after he traveled to Ypsilanti, Michigan to inspect and evaluate a radical new airplane design.

Earlier, in 1934, the Bureau of Air Commerce had held a competition for a safe and practical low cost aircraft. Dean Hammond won the competition with an enclosed cabin, all aluminum, twin-boom, twin-tail, pusher-prop aircraft. Stearman approved of the Hammond Model Y, but thought that it needed much improvement. It was a challenge that Lloyd Stearman could not resist. He resigned from his government position and formed the Stearman-Hammond Aircraft Corporation in San Francisco in 1935. Production of redesigned aircraft began in 1936, but due to its high

cost (of about \$5000) only about 15 were sold. Sales of the Y-1S ceased in 1937.



Stearman-Hammond Y-1S

(Image is in the Public Domain in accordance with [https://commons.wikimedia.org/wiki/Category:Stearman-Hammond_Y-1#/media/File:Stearman-Hammond_Y-1S_\(NC15525\)_\(4558919232\).jpg](https://commons.wikimedia.org/wiki/Category:Stearman-Hammond_Y-1#/media/File:Stearman-Hammond_Y-1S_(NC15525)_(4558919232).jpg))

Stearman next served as vice-president of the Transair Corporation in San Francisco from 1938 through 1939. In 1941 he became the manager of the airplane division of the Harvey Machine Company in Long Beach, California. During the war years his division designed and manufactured cowlings for military airplanes.

Shortly after the end of the war, Stearman resigned from the Harvey Machine Company. He then founded the Stearman Engineering Company at Dos Palos, California, with the intent to design and build airplanes for agricultural use. However, it soon became apparent that the market was flooded with surplus Model 75 (Boeing-Stearman PT-13/PT-17) trainers, that could be readily converted for crop duster and spraying operations.

That venture was soon terminated and, for a brief period, he worked for the National Aviation Corporation in San Fernando, California, where he designed an all-metal wing for the PT-series trainers. In 1946, with partner George Willett, he started up the Inland Aviation Company at Los Banos, California, to convert the ubiquitous “Stearman” PT-trainer biplanes to crop dusters with upgraded Pratt & Whitney R-1340 radial engines.

Lloyd Stearman’s next job search resulted in an ironic and somewhat amusing story. In June 1955 a middle-aged man entered the employment office at the Lockheed Corporation headquarters at Burbank, California. He filled out an application and left. When the employment executive looked at the form later he was startled and confused. He picked up the phone and called Lockheed’s senior vice president, Hal Hibbard. Years later, Hibbard recalled the phone conversation this way:

“Hey, we got some kind of a nut here who says he knows you,” the employment executive said. “And get this, where the application asks about previous employment at Lockheed, the guy writes down: President.” Hibbard gasped. “That’s no nut,” he said.

“That can’t be anyone but Lloyd Stearman.” Hibbard was right, of course, and he certainly did know Lloyd Stearman.

In 1928, when Hibbard was 25 and fresh out of the Massachusetts Institute of Technology, Stearman gave him his first job as a draftsman and engineer at Stearman’s aircraft factory in Wichita. And Stearman gave him two other jobs during the 1930s, the last one when Stearman took over the defunct Lockheed Aircraft Corporation.

So, in 1955, when Stearman applied for work at Lockheed, the company jumped at the chance to hire him.

As a Senior Design Engineer at Lockheed, Stearman worked on advanced projects such as swing-wing aircraft, Vertical Take-Off and Landing aircraft, and re-entry space missiles as well as resolving technical problems with the Lockheed Constellation aircraft.

Lloyd Stearman retired from Lockheed in August 1968 and promptly formed a new company, the Stearman Aircraft Corporation, in Los Angeles. Stearman had dreamed of developing a multi-purpose turbo-prop aircraft that could haul passengers or be converted for agricultural use. However, Stearman’s ill health prevented that plane from becoming a reality. Lloyd Stearman died of cancer in Northridge, California, on April 3, 1975.



Lloyd C. Stearman (The Boeing Company)

For over a half-century, Lloyd Stearman’s contributions earned the respect and admiration of the American aviation industry – an industry that he helped to create.

It appears that all Stearman wanted to do was design and build airplanes, which he did very well. But he had no interest and little aptitude for running his airplane businesses. While Stearman consistently designed highly successful aircraft, his companies were, in the end, not profitable.

Lloyd Stearman was inducted into the National Aviation Hall of Fame in Dayton, Ohio, in July, 1989.

From Airway Beacons to Radio Navigation: 1920 and 1930s

by Scott Thompson (illustrations from CAA chart and manual)

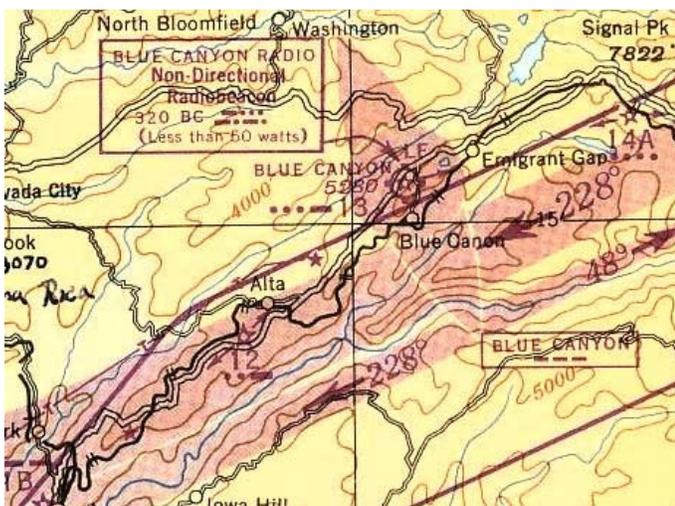
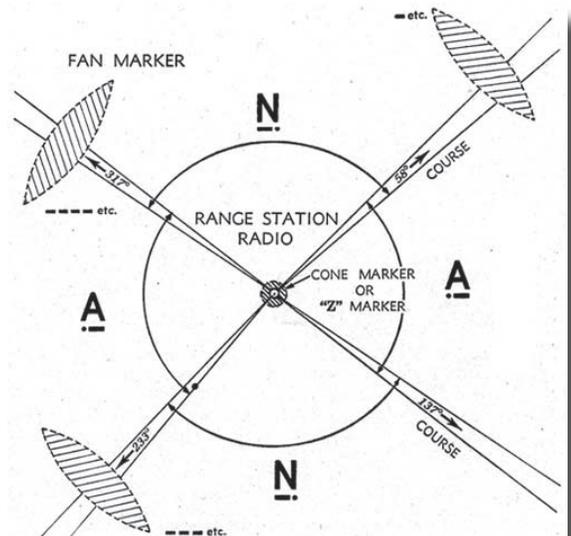
Radio Marker Beacons

Radio marker beacons were developed in the late 1920s to provide a means for pilots to specifically mark their locations along an airway or on an instrument approach. Marker beacons were low power transmitters that continuously emitted a distinctive signal. The initial installations of marker beacons were in conjunction with the airway four course ranges. These low power marker beacons transmitted on the same low/medium frequency as the four course range itself. A 1940 CAA training manual noted that “...all radio marker beacons of this type are equipped for two-way voice communications, and are prepared to furnish weather reports and other emergency information, or to report the passage of an airplane, on request. In case the airplane is not equipped with a transmitter, if the pilot circles the marker beacon the operator will come on the air with the weather for that particular airway. The pilot indicates that he has received the information by a series of short blasts of his engine, and proceeds on his way...”

A later development of the marker beacon utilized a standard UHF frequency of 75 megacycles (later MHz) with an oblong radiation pattern. These became known as fan markers. The sequence of transmitted tones served to identify a specific marker the pilot was overflying, which allowed him or her to know which range course the pilot was flying and also the range from the station. These airway fan markers were also essential in the early days of air traffic control to fix aircraft location.

The UHF fan markers were also integrated into the Instrument Landing System (ILS) as outer, middle, and inner markers and served much the same purpose: fixing aircraft range from, in this case, the runway. For these installations, the markers continuously transmitted a dashed tone (outer marker), a dit-dashed tone (middle marker), or a dit tone (inner marker). In the standard ILS installation, the outer or middle marker was often combined with a non-directional locator beacon to become the LOM (locator outer marker) or LMM (locator middle marker). The NDB portion of the LOM was often essential in pre-radar days to get pilots established on the ILS's final approach course.

As with many early radio aids, the marker beacons have suffered death from a thousand cuts as the modern FAA has slowly decommissioned all the airway markers and most of the approach marker beacons. Category II and III ILS installations usually still retain an inner marker, but DME has (very) long supplanted the usefulness of marker beacons and they have gone by the wayside. Most legacy Cessnas and Pipers still retain the marker beacon receivers, however. They display colored lights for each of the types of markers: blue for outer marker, amber for middle marker, and white for inner marker or (for really old dudes) an airway fan marker. But, there's a good chance that a modern instrument pilot has never actually heard the marker beacon receiver emit so much as beep in all of his or her entire instrument flying.



Here is the Blue Canyon airway fan marker depicted on a 1945 navigation chart. The box in the lower right labeled “Blue Canyon” shows the transmitted tone for the beacon as ‘dash dash dash’ and, as a standard fan marker, transmitted on 75 megacycles. Also located at Blue Canyon was an NDB transmitting on 320 kilocycles with a transmitted identification (“BC” in Morse code) and two-way voice capability with Blue Canyon Radio, an airway radio station.