



Runway 15

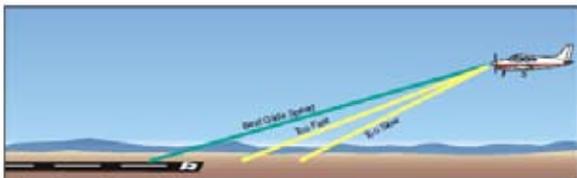


The Monthly Newsletter for EAA Chapter 1541, Lincoln, California

July 2017

Briefing Strip

- The regularly scheduled **monthly membership meeting** on **Wednesday, July 19**, has been cancelled due to forecast high temperatures (100 degrees); too hot for fun. We tried to get air conditioned Cattlemens in Roseville for the meeting but it was booked up. Maybe August.
- We have a Chapter **Saturday EAA Programs** scheduled for **Saturday, August 12**. Program details to be announced. Come one, come all: invite your pilot friends.
- We have another Chapter **Saturday EAA Program** scheduled for **Saturday, August 26** from 0900-1100: topic will be using Foreflight in the cockpit. Again, come one, come all: invite your pilot friends.
- Heed the calls for user input into the future of the air traffic system. Write your congressman and senators about what you think about the proposed changes that might privatize the ATC system. That's three quick and easy emails.
- **EAA AirVenture** will be held this year from **Monday, July 24 through Sunday, July 30** at Oshkosh, Wisconsin. Several members are attending from Chapter 1541. Always a good time.



Calendar

- Friday, July 14:** Lincoln Airport Committee Meeting, 1000 am in the First Floor Meeting Room at Lincoln City Hall.
- Saturday, July 15:** Lincoln Airport Aircraft Display Day, 0800-1200.
- Wednesday, July 19:** EAA Chapter 1541 Member Meeting: cancelled due to forecast temperature.
- Saturday, June 22:** Saturday EAA Program: NORCAL TRACON facility visit.
- Wednesday, August 2:** Chapter 1541 Board of Directors meeting at 1800, House of Pizza on Nicholas Road.
- Saturday, August 5:** Pancakes and a Movie with Chapter 1541 0800-1000.
- Saturday, August 12:** EAA Chapter 1541 Saturday Program; 0900-1100, program to be announced.
- Wednesday, August 16:** EAA Chapter 1541 Member Meeting: cancelled due to forecast temperature.

In addition to the events listed above, there are pancake breakfasts, fly-ins and other aviation activities scheduled for almost every weekend throughout the area. Check the chapter website calendar for the most current information: <http://eaa1541.org/events/>

For the most up-to-date information, go to the chapter website

<http://eaa1541.org/>

Newsletter Contributions

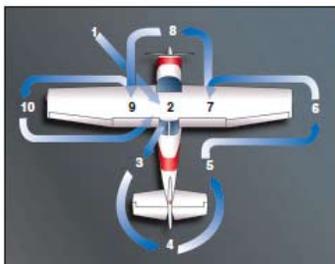
Please help by contributing stories and photos that might be of interest to other chapter members. Perhaps where you flew, what you are building, or what you know about something. A few short paragraphs and a photo or two of your project or travels would be a great contribution. I'll take care of the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

Tidbit from the AIM

1-1-12. NAVAIDs with Voice

a. Voice equipped en route radio navigational aids are under the operational control of either a Flight Service Station (FSS) or an approach control facility. The voice communication is available on some facilities. Hazardous Inflight Weather Advisory Service (HIWAS) broadcast capability is available on selected VOR sites throughout the conterminous U.S. and does not provide two-way voice communication. The availability of two-way voice communication and HIWAS is indicated in the Chart Supplement U.S. and aeronautical charts.

b. Unless otherwise noted on the chart, all radio navigation aids operate continuously except during shutdowns for maintenance. Hours of operation of facilities not operating continuously are annotated on charts and in the Chart Supplement U.S.



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

Byron Maynard

Bruce Robinson

Dug Smith

Scott Thompson

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



***by Ron Wright
Chapter President***

You don't know what you're missing

There has been an increase this summer with hangar activities and too many are missing out! Your chapter members and others have presented entertaining and educational subjects on nearly a weekly basis. I am very proud of the subject matter that is being provided to our members. It's all for free in the effort to make us better informed pilots. I want to encourage you to go to our website on a weekly basis to see what presentations are happening (EAA1541.org). Many of the educational opportunities EAA Chapter 1541 provides its members is tailored to flight safety in and around our area of Northern California. These subjects are outstanding for students and experienced pilots as well. Bring a guest! We owe a very special thanks to all that give up the time to write, research, rehearse, and create presentations. These people are the glue

that help hold our club together and they do it because they believe their efforts might keep us safer in the sky and on the ground in and around aircraft. Another thanks goes out to Dug Smith for making our web site available for all to keep up with all the things that are scheduled. Please complement and give thanks to those fellow members that give so much of themselves to make us a great organization.

Subjects and activities covered since June are and will be:

- June 3rd; Pancake Breakfast
- June 14th: Scrapping Our World War II Air Force
- June 17th: LRAA (borrowed our Hangar Annual meeting) Presentation Nuts and bolts of Instrument Approaches
- June 24th: Steve Harvey, NORCALTRACON, "Working with ATC"
- July 8th: Pancake breakfast
- July 8th: Bruce Estes, "Flying the Bay tour"
- July 22nd: NORCAL TRACON tour

Don't miss out, there's lots happening at EAA 1541

Chapter Member Gone West

Herbert Plucker, 1931-2017

Chapter member Herbert Plucker, 86, passed away peacefully at his home on Sunday, June 25, after a short illness. He served in the Army in Korea and then went on to be commissioned as an officer in the Air Force, serving as a navigator with twenty-three years of service, including time with the 53rd Weather Squadron, the *Hurricane Hunters*, and rose to the rank of Major. He loved to fly and flew as a private pilot during his years in the Air Force.



After retirement, he flew as a charter pilot, flight instructor, and also became an A&P mechanic. He volunteered as a Young Eagles pilot with the EAA and had over 200 flights to his credit with that program. Herb was a dedicated EAA member and was laid to rest with his EAA shirt worn under his regular shirt. At the family's request, our chapter made a donation to the EAA's Young Eagles program in his name.



The June Chapter Meeting...

...was cancelled due to excessive heat...like 106 degrees....which did not bode well for a meeting in the west facing hangar.

And the Upcoming July Chapter Meeting...

...is cancelled due to excessive heat...like 100 degrees....which will not bode well for a meeting in the west facing hangar. Look for the other opportunities this month in the chapter calendar for activities.

Saturday Program

NORCAL Controller Comes to Visit

report by Bruce Estes

Steve Harvey, a NORCAL TRACON air traffic controller spoke for more than an hour at EAA Chapter 1541's breakfast meeting on June 24. If you missed this presentation, you missed a very informative meeting. Steve spoke about:

- Flight Following and how to use it to your advantage
- Beale's TFR and how to get thru it legally
- Aircraft without a transponder (including ultralights)
- Communicating as a novice with NORCAL



The audience provided a lot of good questions for Steve, and everyone learned something. Steve encouraged everyone to communicate with NORCAL on 127.40, even if you are just flying around outside of the airport environment. NORCAL can see you on their radar, even if you don't have a transponder or don't have your transponder turned on. If you communicate with NORCAL, even an abbreviated call stating that you are just going to be flying in a certain area, they can then help keep other aircraft clear of you. Several times, Steve told the audience "talk to us. We want to help keep you safe". Again, his presentation was GREAT.

Note: We have set up a facility tour at NORCAL TRACON (located just east of KMHR) for interested chapter members for Saturday, July 22. We are at the maximum capacity (ten) for this visit but if there is enough interest, we will try and set up another facility tour.



June 14, 2017

Experimental Aircraft Association (EAA)
Lincoln CA Chapter 1541
PO Box 1126
Lincoln, CA 95648
Attn: Ron Wright

RE: Airfest 2017 — THANK YOU!

Dear Mr. Wright:

I sincerely appreciate all of the volunteer hours and support that you and the members of the Experimental Aircraft Association (EAA) provided for the 2017 Airfest. As you are aware, the execution of an Airfest takes hundreds of man-hours and a significant amount of planning. Without the hundreds of hours volunteered by the members of the EAA it would have been difficult at best to have an Airfest.

From the preparation of the plywood X's, to the moving of planes and the monitoring of the ramp, to the set-up and take-down of the miles of fence, the members of the EAA were ready, able, and more than willing to help. For that we are very appreciative and thankful, indeed.

Not only does the City of Lincoln tremendously appreciate the contribution of the EAA, but I personally do as well. With your continued support and diligence, I believe the Lincoln Regional Airport will become the region's premier general aviation airport.

Sincerely,

Jennifer Hanson
Public Services Director

Pilot Report: Magni M16 Gyroplane

Text and photos by Bruce Estes

Dug Smith and Ken Schwartz are good salesmen. It seems I showed up at Ken's hangar Saturday morning and was immediately corralled by Ken and Dug and convinced to take an introductory ride in Foothill Sport Aviation's Magni M16 Gyroplane. I've read about the accident rates in gyrocopters, and was a little reluctant to climb in, but Dug and Ken convinced me to take the flight. Don Bradley, of Foothill Sport Aviation (www.foothillsportaviation.com) is a very competent CFI, and gives instruction and add on ratings for the Gyroplane.

The Magni M16 is a two-seat, tandem gyroplane powered by a turbocharged Rotax 914 that produces 115 hp. I know very little about gyroplanes, but this aircraft seemed very well equipped, having things like a pre-rotor that starts the 28' carbon fiber rotor spinning in the run up area, rudder pedals, and hand brake by the throttle. Normal cruise is about 80-90 mph per the POH. The aircraft is impossible to stall, and horizontal speed can go to zero as you descend. The aircraft cannot hover like a helicopter.

Don briefed me and we both climbed into the Magni, started the engine, and proceeded to taxi to the run up area. Steering is with rudder pedals like a fixed wing aircraft. After run up, the pre-rotor was slowly engaged by squeezing a handle on the control stick to start the rotor rotating. A rotor tachometer gives you the rotor speed. After the rotor reached

about 190 rpm we taxied onto the runway, advanced the throttle, and quickly were airborne. Because the control stick is connected to the rotor, and the rotor is doing a lot of "monkey motion" as it rotates and changes angles, the control stick shakes. Pulling back on the stick changes the angle of the rotor to make the Magni climb, and side to side motion banks the Magni. We flew around, and Don demonstrated some of the flying qualities of the Magni. Landings were next, and to a fixed wing pilot like myself, the landings were VERY DIFFERENT. Pull the power back on downwind, set up for a short but high approach,

and then dive for the runway. Flare prior to hitting the runway, the forward speed decays real quickly, and you plop down to a landing. It was really weird to see the runway SLOWLY passing underneath you.

After a thirty minute flight, which included two landings, we taxied back to Ken's hangar. As I climbed out of the Magni, I found myself smiling. This was a totally different flying experience than what I was accustomed to. I'm glad I did it. Contact Don Bradley at www.foothillsportaviation.com for more info. Don flies out of Cameron Park.



Saturday Report

Flying a Bay Tour

report from Scott Thompson

On Saturday, July 8, chapter member Bruce Estes presented a program on how to fly a Bay Tour. First off, for those unfamiliar, a Bay Tour is a journey over the hills to the west into that admittedly complicated airspace surrounding San Francisco, Oakland, and San Jose airports, and such a journey might involve flying through Class B, Class C, and Class D airspace. This can be pretty intimidating to the uninitiated, but Bruce explained what is involved in a clear and straight-forward presentation. With the assistance of his tablet and our projector, Bruce was able to use Foreflight to illustrate charts and routes on the big screen for all to see.

Bruce has done a lot of flying in the Bay Area, learning to fly at San Carlos, which lies right in the shadow of San Francisco Intl, and makes regular trips back to San Carlos on a monthly basis. Besides flying into airports in the Bay Area, Bruce also discussed doing an actual 'tour,' that is, flying to see the sights which might include the Golden Gate Bridge, Half Moon Bay, or flying along the shoreline offshore of The City itself. The main

take-away is that such a flight is not that difficult and with the help of air traffic controllers, it can



actually be a fun experience for passengers and pilots alike.

The Saturday program started with a pancake breakfast assembled and directed by Dug Smith with some able assistance. The Saturday programs are an effort to present information on a variety of topics. Stay tuned for more to follow.

A Special Thank You...

...and a sarcastic grunt to the individual who thinks that other people should clean up after him. This classy guy dumped his busted refrigerator in an area next to a hangar at the airport and left it for someone else to deal with. Who's going to clean up his junk? Well, that's not his problem anymore.



A Brief History of the Tilt Rotor Aircraft

*by Martin Maisel
(photos as credited)*

Part 4 - The V-22 Osprey

The U.S. Army, the Air Force and the Marines, seeking a replacement for the venerable, but aging CH-46 helicopter, conducted a study in 1982 to identify the VTOL vehicle that would be best suited for current and future vertical lift missions. Scientists, engineers and military personnel from each military service and from NASA participated in the four-month study that examined conventional helicopters, compound helicopters (with auxiliary propulsion), fan-in-wing aircraft and tilt rotor aircraft. Parameters such as operational effectiveness, cost effectiveness, life-cycle costs, combat survivability and maintainability were evaluated for a number of diverse military missions. The study concluded that the tilt rotor aircraft best met the requirements and Congress subsequently authorized funding to initiate the design and development of the JVX (Joint Vertical Experimental) program. Release of the funding to the contractor, however, was withheld for about a year by the Secretary of Defense who had preferred the funding be used for other procurements. The logjam was broken when the Secretary of Defense was threatened with contempt of Congress charges and work on the JVX (later designated the V-22) was initiated.

Since only Bell had experience in designing, building and flying a tilt rotor aircraft, the issue of “sole-sourcing” such a potentially large Government contract was a possible show-stopper. In what might be considered to be a “stroke of genius”, the probable challenge to the sole-source contract was eliminated when the only likely contender, Boeing, was asked to join Bell in a joint venture, thereby creating the Bell-Boeing V-22 team. Full-scale development was authorized in December 1986. Bell, with its XV-15 experience, was responsible for the design of the wing, nacelles, rotors, drive system and tail surfaces.

The Boeing Military Aircraft Mobility Division (formerly Boeing Helicopters), having significant experience in composite materials, designed the fuselage and was also responsible for the V-22’s cockpit, avionics and flight controls.

It should be noted that the intended multi-service application of the V-22 imposed significant, and often conflicting requirements that influenced the design of the aircraft. One example is the Navy and Marines need to operate off of amphibious assault ships (such as light “Wasp-class carriers”). For shipboard compatibility, the rotor blades fold and the wing rotates over the fuselage to minimize the aircraft’s footprint for storage, impacting the aircraft’s weight and complexity. Furthermore, the requirement to operate on the carrier deck adjacent to the island, while maintaining a safe distance from the deck edge restricted the wing span and rotor diameter. The 38.1 ft diameter of the Osprey’s rotors requires more power and produces higher downwash velocities than a larger rotor would. Also, a smaller diameter rotor produces a higher downwash that affects ground personnel and increases “brown-out” (i.e. loss of visual reference) problems when operating in a dusty environment.



V-22 Osprey with rotor blades and wing folded for stowage (ID 021012-M-XXXXG-001 US Marine Corps image is in the public domain)

The design of critical dynamic elements of the V-22 drew heavily from Bell’s experience with the XV-15 Tilt Rotor Research Aircraft. Key features of the XV-15, such as the three-bladed rotor, engines mounted in tilting nacelles, a forward swept thick wing, a cross-shaft connecting the nacelle gear-boxes, and an “H” vertical tail, were incorporated in the Osprey.

The V-22 had its share of problems. Among the configuration changes influenced by the Marine management early in the program was the use of a throttle-type control like the one used in the VTOL Harrier, instead of a helicopter collective lever. During one developmental test at Boeing the pilots found they could not control roll properly after they lifted to a hover. After erratically dancing around for several seconds the aircraft was finally planted on the ground. The pilot, with lots of helicopter experience, intended to reduce the power – but pushed the throttle forward (the helicopter collective lever would be pushed down to reduce power). The aircraft again jumped into the air and again began to gyrate wildly in roll until a nacelle and rotor contacted the ground, leading to the loss of the aircraft, but fortunately without injury to the two-man crew.

(A video of the final moments of this unfortunate event can be seen at: <https://www.youtube.com/watch?v=JCUmJbsrL7g>)

It was later discovered that the loss of roll control was due to the incorrect installation of roll sensors, which produced a roll opposite to the input command. The use of the throttle contributed to the crash because of the poor “human engineering” of that control. The throttle was subsequently modified to improve the input/response relationship.



Bell-Boeing MV-22 Osprey in cruise-mode flight (US Air Force image 070330-F-4684K-030.JPEG is in the public domain)

Further accidents plagued the early years of the Osprey program. After completing environmental testing in Florida, a V-22 in transit back to the Boeing test facility in Maryland, converted from the airplane mode to the helicopter mode over the Potomac River in preparation for landing at the Quantico Marine Base. Flammable fluids

that had collected in the nacelle during the flight suddenly ignited. The flash fire severed a composite rotor shaft resulting in a crash into the Potomac killing all seven people onboard. The rotor shaft was subsequently changed to a metal component to tolerate high temperature conditions and other design changes resolved the fluid leaks.

Tragedy struck again on April 9, 2000, during a night training exercise at Marana Regional Airport, AZ. One aircraft in a flight of two V-22s descended rapidly to avoid overflying the intended landing spot. The aircraft crashed causing the loss of 19 Marines. An investigation determined that the pilot had exceeded the allowable descent rate that resulted in the loss of rotor lift. This was due to a condition called the “vortex ring” state in which the induced flow below the descending rotor is sucked back into the rotor, creating a no-lift “donut” vortex instead of the thrust-producing downwash. This phenomenon exists for all rotor-lift aircraft. To avoid further occurrences, automatic warnings were provided to alert the crew if they are approaching airspeed and descent conditions where the vortex ring state could develop and improvements in flight training were instituted.

Another fatal accident occurred on December 11, 2000 near Jacksonville, NC after a hydraulic line failed. The complex automatic flight control system was not properly programmed to handle that failure and the subsequent loss of control resulted in the aircraft descending into terrain, killing all four onboard. After another long stand-down the flight control code was modified and the V-22 returned to flight status.

While none of the accidents were specifically attributable to the tilt rotor concept (but were charged to design, maintenance or pilot error causes) they nevertheless provided ammunition to industry and Government advocates of other aircraft systems that were competing for DoD funding. The Marines, however, pressed Congress to continue the development of the Osprey that they were depending on for enhancing their future war-fighting capabilities. The Marine Corps request proved to be persuasive and V-22 production funding was approved.

In September 2007 the first ten V-22s were deployed to a combat zone. In the sandy environment of Iraq, engine life and other maintenance

problems had resulted in a lower-than-target mission-capable-availability rate (not unexpected for the first use of a new aircraft system), but the aircraft had received high grades for its effectiveness from flight crews and commanding officers.

In November 2009 MV-22s were deployed to Afghanistan where they played key roles in the conflict with the Taliban. By February 2011, Marine Commandant General James Amos stated that the Ospreys in Afghanistan had surpassed 100,000 flight hours and were “the safest airplane, or close to the safest airplane” in the Marine Corps inventory. By early 2017 the Osprey fleet was approaching 400,000 flight hours.



Marine Corps MV-22 Osprey (US Marine Corps image is in the public domain)

In addition to ongoing military operations of the V-22, several MV-22 Ospreys have also been configured to support the Marine One presidential transport squadron.



MV-22B Osprey of Marine Helicopter Squadron One (President and VIP Transport Squadron). (US Marine Corps image is in the public domain)

Current plans call for a fleet of 360 Marine MV-22s, 48 Navy MV-22s and 52 Air Force Special Operations CV-22s. By early 2017, the Bell plant in Amarillo, Texas had delivered 287 MV-22Bs and all 52 CV-22s. The Navy has announced that their Ospreys, now designated as the CMV-22B, will replace the aging Northrup Grumman C-2 Greyhound for Carrier Onboard Delivery (COD) duties.

International sales of the Osprey are also evolving. Japan is the first foreign country slated to receive up to 17 MV-22 aircraft for their Self Defense Force with the first five to be delivered in 2018. Other nations that have expressed an interest in acquiring the Osprey include India, Israel, South Korea, and the United Arab Emirates

The V-22 Osprey was the first tilt rotor aircraft to go into production – but it probably would not be the last.