

Experimental Aircraft Association Chapter 1246
Volume 9, Issue 7

www.EAA1246.org

McKinney, Texas
August, 2007

Frontiers Of Flight Museum
Collin County Community College
7:00 PM, Pike Hall

Collin County Community College, McKinney, Texas

*Thursday, August 9,
2007*

Dan Hamilton is the Executive Director of the Frontiers of Flight Museum at Love Field, Dallas, Texas. He will tell us about the recently expanded museum, which now contains several interesting aircraft, as well as historical documents.

The Frontiers of Flight Museum was founded in November 1988, by Kay Bailey Hutchison, Jan Collmer, and William E. Cooper. Their initial intent was to exhibit at Dallas Love Field the priceless artifacts, documents and photographs of the History of Aviation Collection donated to The University of Texas at Dallas by the legendary aviation historian George E. Haddaway. Since then, the Museum has added extensive artifacts dealing with the history of aviation from earliest days through today's modern military, commercial, and aerospace vehicles.



Frontiers of Flight Museum

Museum History

The Frontiers of Flight Museum was established in 1988. Its mission to create and sponsor educational programs for school and public groups in order to educate, motivate, and inspire the next generation through aviation history has remained constant. Co-founded by Senator Kay Bailey Hutchison, Jan Collmer, and Bill Cooper, the Frontiers of Flight Museum collection originated from materials donated by George E. Hadaway to the University of Texas at Dallas.

The Board of Directors created and adopted the following as its Mission Statement in February, 1989, and has remained true to its core and values to “*create and educate, motivate and inspire the next generation.*” The Museum is committed to preserving the University of Texas at Dallas’ history of aviation collection, and jointly preserving and expanding the Frontiers of Flight Museum’s own collections. The Museum recognizes and promotes the contributions of aviation and aerospace to the community. And lastly, but not least develop the Museum as a resource of national significance. The Museum does this, and it does it well.

A grant from Texas Department of Transportation enabled the complete “build” of The Museum. With a match of funds from the private sector the Museum was built debt free. Having moved into its new, 100,000 square foot facility in 2004 the Museum has greatly expanded its exhibits. More than twenty major exhibits will be on display with twenty-five full size aircraft when the museum’s phase-in plan is fully completed.

The Museum, designated as a Smithsonian Affiliate, greatly enhances the Museum’s ability to feature exhibits on loan and provide education programs from the Smithsonian’s National Air and Space Museum, as well as the entire Smithsonian system. The Apollo 7 Command Module has been on display for several months and is on loan to The Museum for the next several years as a pinnacle example.

Guest Speaker, Dan Hamilton

Mr. Hamilton started his professional career in 1971 as a mechanical engineer working for a Dallas area defense contractor on various radar and missile programs. He eventually served many years as CEO of a local engineering consulting and contract manufacturing firm specializing in factory automation equipment and semiconductor processing equipment. Prior to joining the Frontiers Of Flight Museum as Executive Director, Dan served two years as the Director of Operations for the Dallas 2012 Olympic Bid effort.

Mr. Hamilton has a bachelor’s and a master’s degree in mechanical engineering from Southern Methodist University. He also has earned a M.B.A. with honors from the University of Dallas.

Dan is a registered Professional Engineer with the State of Texas and holds two U.S. Patents for design of semiconductor processing apparatus.

How to Make Successful Landings: Part 3

By Wayne Fisher, EAA #0529247

In the first article we presented some of the general issues related to landings. In the second article we presented some of the specific issues related to landings in a tricycle gear airplane. This third article will deal with specifics to landing a conventional gear or tailwheel airplane. In this article the terms conventional gear and tailwheel will be used interchangeably. If you don’t have your tailwheel endorsement (FAR 61.31(i)2) you should find this article interesting and especially informative. If you do, hopefully, you will find this article enlightening and helpful.

It turns out there is nothing different about the approach, when it comes to conventional gear airplanes or tricycle gear airplanes. Differences in technique do begin to show up after the final approach. Just as in tricycle gear airplanes, the things specific to conventional gear airplanes deal with that small window of the flare to a landing and the rollout.

Points to be aware of affecting successful tailwheel landings:

As in the second article the first difference we will consider is W & B (Weight and Balance). This time, however, we will consider a conventional gear airplane and its placement of the main gear. It is important to note that we are not talking about W & B as it relates to an airplane in flight but rather as it relates to the position of the main landing gear in relation to the CG (Center of Gravity) when on the runway. In tailwheel airplanes the CG is well back of the main landing gear. This destabilizes the landing roll making the rollout much more difficult for the pilot of a conventional gear airplane.

Many pilots are familiar with the classic tailwheel tendency to want to swap ends on rollout. This is because, with the CG rearward of the mains, the greatest mass of the airplane is behind the mains and it wants to swerve right or left during the landing rollout. This is somewhat comparable to applying only the front brake of a bicycle in motion. If not corrected promptly during the landing rollout it can result in a ground loop where the airplane swerves completely around potentially doing damage to the airplane because of too much stress on the gear or hitting a landing light, etc. It is possible to survive a ground loop without damage to the airplane, however, the pilot’s ego is another matter.

To avoid the ground loop scenario it is important for the pilot to keep the airplane moving in as straight a line as possible on landing rollout. The more out of line the airplane gets, the more difficult it is to correct the situation. This is another reason why landing on the centerline and staying on the centerline is such an important and, in this case, helpful technique.

During the initial landing rollout when airspeeds are higher the rudder has more authority or effectiveness. As the airspeed slows down brakes may have to be applied because rudder alone is not enough. This can present a difficult situation because it’s

easier to get into an over control situation with brakes than with just the rudder. Brakes can grab or even lock up. Plus, it's more difficult to apply the right measure of correction with brakes. The only saving factor is that by the time brakes are needed, hopefully, the airplane landing rollout speed has reduced enough that the adverse effects caused by the use of brakes are minimal.

Never forget that another key point to successful landings is practice. With practice comes a comfort level that is quite satisfying and rewarding, as a pilot is able to handle stronger and stronger crosswinds safely and competently in a conventional gear airplane. There are a number of ways competency in landings can be demonstrated or measured. A few examples would include (you guessed it) landing on the centerline and staying on it throughout the landing roll, landing consistently on the same spot, etc.

The final point presented in this article pertains to the effects of crosswinds and how to have successful landings in spite of this condition. We've all heard the horror stories about crosswinds and conventional gear airplanes. With proper technique and skill the crosswind scenario can overcome enabling you to enjoy your tailwheel flying more, or perhaps, your tailwheel airplane more.

Factors affecting successful crosswind landings:

Let's begin by presenting some general issues. The reference to general issues means that they are matters that deal with all phases of the crosswind landing or are a factor in more than one.

Probably the most crucial general issue would be to fly the airplane clear through the landing. Or, in other words, "stay with the airplane" all the way to the turn off to the taxiway. This may seem obvious but one of the most common mistakes pilots make is to relax or mentally quit flying the airplane once it touches the runway. Not a good idea, especially in the case of tailwheel airplanes.

Another general issue is landing on the centerline and staying on it throughout the landing roll all the way to the turn off to the taxiway. Sound familiar! There are far too many pilots who aren't even consciences of whether they are landing on the centerline and/or staying there throughout the landing roll. Think about your landings. Are you conscious of whether you land on the centerline? It's very easy to get complacent about this matter. This standard is required for the check ride and should never be departed from. It has been suggested that this standard could be disregarded in the case of a crosswind by landing on one side of the runway and crossing to the other side during the landing roll to reduce the angle of the crosswind. It turns out the benefit of this technique to reduce the angle of the crosswind is very little compared to the risk of operating near the edges of the runway. The only pilots that have an excuse about not landing on the centerline are those that operate from a grass strip, however, even then a good consistent placement on the center of the most worn grassy area, and staying there is a good measure of a successful centerline landing.

Finally, let's present some of the techniques related to a successful crosswind landing.

First, let's consider the proper technique when on final approach. There are two schools of thought here and it really depends on the proficiency and preference of the pilot. One technique is to establish the crosswind configuration of the airplane (forward slip) soon after turning final, that is, upwind wing down enough to hold the airplane on the centerline and enough rudder to keep the airplane in line with the flight path. The other technique is to hold the aircraft on the centerline down final but in a crab. Then as the flare begins the pilot "kicks" the airplane into a forward slip just prior to touch down. This later technique takes less work but requires more skill and proficiency. The former takes more work because the airplane must be held in a forward slip for a longer time but it does allow the pilot to get use to the forward slip configuration prior to touch down.

Second, let's consider the proper techniques when touching down. For conventional gear airplanes there are two possible techniques for landing. One is the full stall or three-point landing in the case of no wind or very little wind. When there's a crosswind the pilot should use the wheel landing technique. There's nothing to preclude a pilot from using a wheel landing in a no-wind condition.

The full stall landing technique for a conventional gear airplane is similar to that of a full stall landing in a tricycle gear airplane in that a full stall is arrived at just prior to touch down. Depending on the pitch-up in the flare and the design of the airplane, it is possible that the tailwheel may touch first. This is of little consequence, as mains will soon follow bearing the load of the airplane. One thing that's worth mentioning is that the full stall landing must indeed be a full stall or when the mains touch they will bounce potentially setting up a nasty bucking action as the mains bounce in the air bringing tailwheel up. Then, as the mains bounce again this forces the tailwheel down. This uncomfortable (and embarrassing) cyclic action will continue longer according to the speed above the stall that the pilot allowed the aircraft to touch down in the first place. To avoid this scenario, remember the technique in a full stall landing is to hold the airplane off as long as possible.

The technique for a crosswind landing in a conventional gear airplane is to use a wheel landing. A wheel landing is basically where the pilot flies the airplane onto the runway. Using the same approach technique as in the case of a tricycle gear airplane, the forward slip should be held such that the airplane is landed on main wheels or upwind main, first, in the case of a stronger. At touch down, simultaneously, the throttles should be reduced and the stick should be pushed slightly forward to hold the airplane on the runway. Also, after touch down, the forward slip must be held all the through the landing roll. Obviously, there's no forward slip once the airplane touches down but the upwind aileron still needs to be held up into the wind on the landing roll to avoid the crosswind from picking up the wing. Also, as speed reduces the stick should be gradually pushed forward to hold the tailwheel off as long as possible. There is much theory and more detailed techniques that could be presented

concerning the wheel landing but we'll leave that for another time.

Third, let's consider proper technique on rollout. The conventional gear design results in a landing roll phase that is rather demanding, and requires a lot more attention in a crosswind, now not only because of the destabilizing effect of the rearward CG in relation to the main landing gear but because of the weathervane effect on the tail (vertical stabilizer). Regardless of these considerations, a pilot should not be intimidated by a tail-wheel airplane on landing rollout.

In conclusion, things happen fast enough in a landing but happen even faster and increase in complexity when there's a crosswind, that's why, especially in the case of a wheel landing in crosswind conditions, that's why pilots need to fly the airplane all the way through the landing.

Following these pointers, and with practice, it is surprising the significant crosswind that a pilot can handle and still land successfully, and more importantly safely.



Congratulations!

EAA Chapter 1246 Website

Takes 2nd place Web Editor Award at Oshkosh!!!!

Our own Jim Smith has done an outstanding job as Web Editor. His hard work for our Chapter has paid off with National EAA awarding his efforts with 2nd place at Oshkosh this year.

Well Done Jim!

MEETING MINUTES

EAA Chapter 1246

Officer's Meeting

July 18, 2007

7:30 p.m.

Oshkosh events

Web editor awards at Reach for the Sky

Air race results

Pictures and write-ups discussed

Contact list discussed

Future Speakers/Programs

August – Frontiers of Flight Museum's Dan Hamilton

September - options discussed

Christmas Party Reservations are being arranged

Volunteers have been found to attend the Tuskegee Airmen Convention

Chili Cook-Off

Needs Discussed

Desserts and volunteers will be requested at the next meeting

Russ will contact Pete Huff

Newsletter Articles are requested

Recent newsletter very well received

Web site features

Some yet to be investigated

Status of Finances

Poker Run showed a small profit

Officer expenses were reimbursed

Officers agreed to invest some of the chapter revenue on new tables

BOLD Air Race

After discussion, BOLD Air Race will be announced at the next chapter meeting



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Member EAA 1246 - Ask about N9VW !



Calendar of Events

(Items in **Bold** are **Chapter 1246** events)

Aug 9 EAA Chapter 1246 General Meeting

7:00p Pike Hall Collin Co. Community College

Aug 15 EAA Chapter 1246 Officers Meeting
 7:30pm Cutter Aviation. TKI

All are welcome!

Aug 18 Stephenville Tx. Chapter Fly-out

Hard Eight Pit BBQ. Clark Field Muni. Join us for the best BBQ in TX.! Plan to arrive 11 am.

Aug 25 Tuskegee Airmen Youth Day

Addison TX. Cavanaugh Museum of Flight. Airshow, tour, meet the Tuskegee Airmen! Bring the Kids!

Sep 22 Chapter 1246 Chili Cook off

Sep 29 BOLD air race

Denton Tx

Sep 29 Challenge Air Fly Day

Mesquite Tx.

Cancun Mexico

Dec 13-16 5 Star All-Inclusive Resort \$316.19 ppd

Royal Carribean Bahama Cruise

Sep. 17-21 \$59.00-\$99.00

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August 2007

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McKinney EAA Chapter 1246 Membership Application or Renewal

New Member: _____ or Renewal: _____

Name: _____

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Phone: Wk () _____ Hm () _____

E-Mail Address: _____

* EAA Number: _____ * Exp. Date: _____

Pilot/A&P Rating: _____

Notes/Comments/Projects:

Membership dues are \$20 per year due Jan 1.
Make checks payable to **EAA Chapter 1246**.
Mail applications to:

Sue Cowan
2250 Purdue Dr.
Lucas, Tx 75002

* National EAA membership required.

National EAA Offices:
EAA Aviation Center
P.O.Box 3086
Oshkosh, WI 54903-3086

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Ann Asberry (member Profile)	972-995-0372
Chuck Godber (Bulletin Bd)	972-491-6717
David Godber (Bulletin Bd)	903-532-3577
Jim Smith (Fly-Out Co-ordinator / webmaster)	214-906-7701