EAA CHAPTER 1410 HIGH RIVER, ALBERTA, CANADA

Chapter Waypoints

Volume IV: Issue 1
JANUARY 2009

NEW YEAR'S GREETING FROM OUR NEW PRESIDENT!

Happy New Year! And what a year it should be. Just think, this is the Centennial anniversary for powered controlled flight in Canada. It may be obvious, but it's worth celebrating that the first flight was performed by a homebuilt. The Silver Dart was designed, built, and flown by adventurers.

These adventurers didn't accept status quo. They didn't wait for someone else to present them with a tried and true solution. They reached beyond the norm. That spirit of adventure is in all aviators, all aviation enthusiasts.

Whether you're building, flying, or dreaming of building or flying, you're growing your experience, expanding your adventure.

So I ask you; what are your Aviation goals for 2009? How can you be involved in this special year? What is your adventure? Are you starting a new project? Are you getting a new endorsement?

Will you purchase a new airplane? Are you flying somewhere special? Are you going to fly 10 Young Eagles this year? How about 20? Are you finishing an existing project? How about a new flying experience? Have you tried gliding, aerobatics, ultra-lights...?

Jeff Seaborn, Chapter President and RV-7 Builder

(Continued on last page...)

OSHKOSH 2009: WILL CANADA BE SHOWCASED?

Can you imagine AirVenture 2009 with Canadian aviation being showcased? That is what Chapter members Jack and Jean Dueck along with Paul Gregory, have put forward as a proposal to the executive at EAA International.

Last week, they submitted a document proposing a Canadian theme for AirVenture 2009 that compliment the current programs at the convention. They wanted to begin the discussion on what is possible for celebrating Canadian aviation as it relates to the

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Inside this issue:

CHAPTER NOTAMS

- CHANGED MEETING DATE! Next chapter meeting January 8, 2009 at the Dueck hanger (see www.eaahighriver.org for directions)
- Chapter Meeting to discuss Oshkosh 2009 and learn about Reno Air Racing
- Chapter Pot Luck is now set for February 7, 2009
- 2009 Membership fees are due. See the last page for details.

CANADA SHOWCASED AT OSHKOSH?

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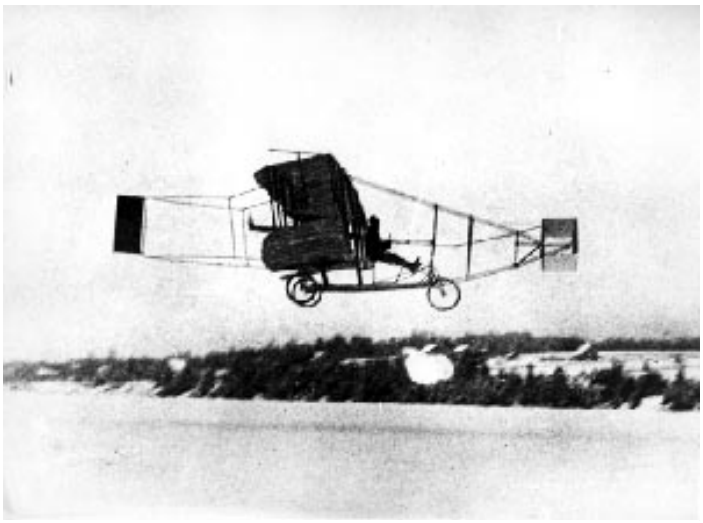
U.S. and the rest of the world. Naturally they are seeking to obtain EAA Headquarters' approval to proceed so they can begin to communicate the scope and ideas for the project.

Note that they do not have approval for this idea as of this date.

Why this year? We in Canada have a lot to celebrate - it is our 100th year of Canadian Contribution to flight!

Chapter 1410 has done it before. At AirVenture 2006, members of EAA Chapter 1410 High River Alberta, Canada successfully organized the "Canadian Lancaster to Oshkosh" project. It showcased a Canadian built WWII Lancaster bomber. Popular aspects included six WWII Lancaster vets and a register of U.S. airmen who flew for the Royal Canadian Air Force (RCAF) before the USA entered the war. The project raised EAA's profile back in Canada and impressed the leadership at EAA so much that they suggested to Jack Dueck that a Canadian theme might be repeated again.



On February 23, 1909, J.A.D. McCurdy made history when he flew the Silver Dart from Bras d'Or Lake at Baddeck, Nova Scotia. The Silver Dart only flew a half mile, but it was the first heavier-than-air machine to fly in Canada and the entire British Commonwealth.

Some ideas this year include having a central marquee at AeroShell Square that will feature a replica of the aircraft Silver Dart, historical materials and feature examples of Canadian aircraft

We are considering featuring Canadian Warbirds and vintage aircraft, Canadian aerobatic performances, showcasing Canadian homebuilders and kit suppliers, and educational forums on flying to Canada.

What they need next are approvals from EAA to proceed with evaluation and final plans, permission to contact external parties to gauge their interest in participating, and establishing EAA contacts and volunteers.

This is going to require a lot of help so if you are interested in participating in the greatest aviation event in the world, contact Jack or Paul at eaahighriver@shaw.ca.

Paul Gregory, Editor

INTRODUCING ANDREW COCKER, CHAPTER SECRETARY

My name is Andrew Crocker and I will be your Chapter Secretary for 2009. I've lived in Calgary for the last 12 years, and my vocational background is in chemical technology.

For as long as I can remember, I have always looked up every time I have heard an airplane. My passion for aviation started with building and flying r/c airplanes. I received my private pilot license in '98 and my commercial pilot license in '99, and I have been flying recreationally ever since.

Andrew Crocker with his sons in front of a Calgary Flying Club Cessna 172

A couple of years ago I started to look into the possibility of building an RV 7a, and I have made that a reality with the help of EAA this past year.

In the upcoming year I would like to have a strong presence within the aviation community by volunteering for upcoming events, and I plan to keep pounding the rivets.

From The Tech Desk:
THOSE SQUIRRELLY TAILDRAGGERS

Jack Dueck is the founding President of Chapter 1410 and he holds a CPL with multi-engine and IFR endorsements. He has restored an Aeronca 11AC, a Luscombe 8C/E, and built an RV-4.

He is the Editor of the on-line EAA newsletter "Bits and Pieces" and sits on the EAA Homebuilder's Council and the EAA Canadian Homebuilders Council.

On May 5, 1995, having restored a Luscombe 8C, I set up to do some taxi tests before the first flight. After a bit of slow speed maneuvering, I lined up on the button of runway 16L in Whitehorse, smoothly applied power and controlling the aircraft allowed the tail to lift of the ground in a perfectly normal and expected manner. I certainly didn't want to get airborne, and I cut the power well before reaching lift-off speed. Wow! This aircraft became a tiger! It cut to the left. The left gear left the ground. The right wing came down and scraped the ground, and only with the application of brutal right brake did I manage to prevent that famous instantaneous 360 degree view of the horizon or ground loop.

Nothing like a little excitement to focus one's attention on a specific issue! I subsequently found a substantial toe-in on the Luscombe's right gear, and when corrected, the airplane became the gentle flying machine that so many of us have enjoyed over our flying careers.

I wrote about this incident and it was published as an article in EAA's Flight Advisor publication that fall. As a result of that article I received a letter from Marv Hoppenworth of Cedar Rapids, Iowa, and that's where this story begins.

You may not know Marv, but you know of his delightful "Home of the Originals" pedal driven little airplanes that you may have seen at Oshkosh, and many of us have built for our children and/or grandchildren. Marv asked me to send him a copy of my Luscombe newsletter that actually recommended toe-out for tail-draggers. He had served as an aircraft mechanic in the Army 741 Div. Air Section in Korea, where he found that rigging the Army's air-spotter tail-draggers with a couple of degrees of toe-out made them easier to handle during the transition between flight and touch-down with the reduction in rudder authority when power was reduced.

If this piece saves just one amateur-built light plane, or any plane, from grinding a wing upon landing, I will feel my effort has been justified!

In December of 2004, I received a letter from Marv, together with an article that he had published in 'Light Plane World", back in 1986. Marv's article covers this so well, that with his permission, I am including it in this column.

As a sidebar, in conversation with Marv, he mentions that the Cessna 180 Maintenance Manual recommends a 1/16" toe-in. This is however, with the empty aircraft sitting on its gear in a hanger. Marv points out that with the additional weight of people, fuel, and baggage, the gear geometry is such that this toe-in effectively disappears to a neutral or slight toe-out condition in actual conditions.

If your homebuilt tail-dragger seems to be more squirrelly than it should, check your toe-in/toe-out condition. This may be the problem.

LANDING GEAR – TOE IN, TOE OUT?

By Marv Hoppenworth, originally published in 'Light Plane World", 1986

Several times when landing gears for small, amateur-built aircraft were being welded up, fellows who gathered to watch the fun have come out with this question:

"In welding up the landing gear for a conventional aircraft, should the wheels be given toe-in or toe-out? Automobiles have toe-in, so why not airplanes?"

Every time I heard it, I felt chills run up and down my spine — it was hard to imagine a cute little airplane with toe-in deliberately built into its undercarriage! But, odd questions have a way of leading to interesting and profitable avenues of thought. If you will bear with me, and try to follow my reasoning, I will herewith attempt to show that while toe-in definitely should not be used, there is, in fact, a case for the use of toe-out.

LANDING GEAR – TOE IN, TOE OUT? *(Continued from previous page)*

It is assumed that everyone understands what toe-in and toe-out means, but to be sure we're all speaking the same language, toe-in means that the center points of the wheels — or more properly, of the tire treads — are closer together in front than at the rear when we look down upon a pair of wheels. If unrestrained by axles, the wheels would move closer together as they moved forward. Toe-out, of course, is the exact opposite.

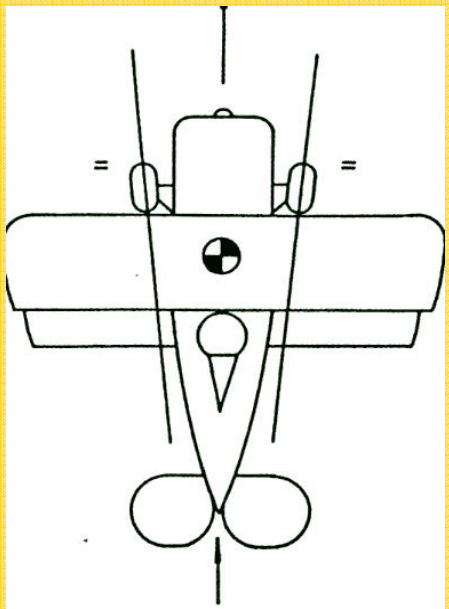


FIGURE 1

My first experience with toe-out was while tinkering with model airplanes. After a nice flight, it was disillusioning to see my rubber powered models complete their landings with ground loops. I built a small scale model for the purpose of experimenting with landing roll control and from it I found that, when the wheels were given about five degrees of toe-out, the landings were straight and happily realistic.

Later models provided yet another lesson. A friend was entered in a flying model event called "Clipper Cargo", in which the model is given the greatest possible load and is allowed to take off with the timer set for a 15 second motor run. The object was to try to make the model remain aloft for 40 seconds. Under the rules, the take off run could last as much as six or eight seconds. In that amount of time we found a model could wander off into a take off ground loop. Seeking to help my friend over-come this problem, I told him about my experience with toe-out. He tried it — and came back from the next contest carrying the trophy for first place.

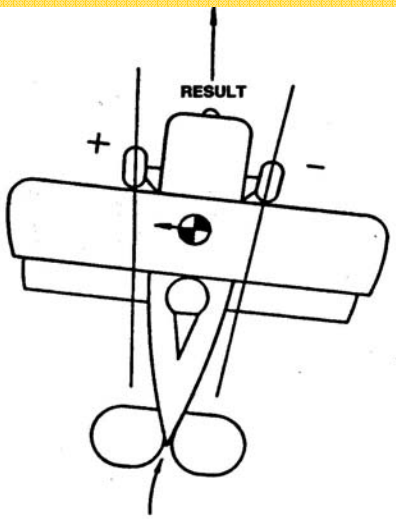


FIGURE 2

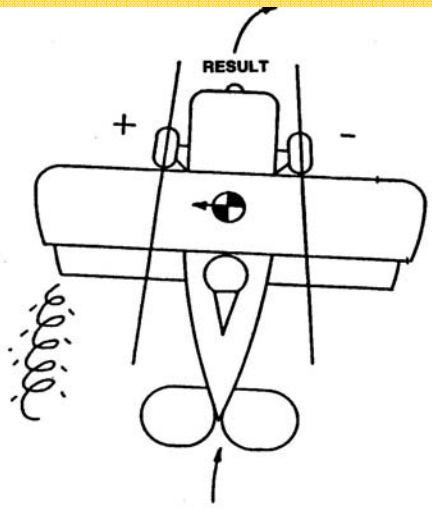


FIGURE 3

Somewhat unintentionally, I next had experience with toe-in on an actual aircraft. A J-3 Cub had been used for a season of rough ski flying, and that had evidently bent both axles so they had toe-in. When the wheels were put back on in the spring, this reputedly docile little airplane acted more like the proverbial "cat on a hot tin roof". Upon landing, it sort of skipped from one wheel to the other on its way down the runway. If the same axle bending had happened on a bigger and faster plane, the resultant ground looping tendency would have been terrific, and I doubt if anyone could have made corrections fast enough to avoid rolling the wings up.

In short, these experiences taught me that toe-in can cause marked instability and that toe-out can, when wisely used, add to stability. I can explain it best with diagrams. Figs. 1, 2 and 3 show typical small biplanes of the kind known to be a little hot to handle on landings. I would point out, first of all, that when an airplane turns or swerves on its landing run, the tire and shock absorber on the outside of the turn compresses and the plane leans to that side. This is because, in the actual airplane, the center of gravity is an appreciable distance above the point of contact between wheels and runway. This, of course, puts a greater percentage of the plane's weight onto the outside wheel. In Fig. 1 the plane is rolling straight and there is equal weight and therefore equal friction on each tire.

But as soon as there is a swerve, however slight it may be, the plane's momentum is great enough to work on the high CG and create a leaning force as indicated by the arrows on the CG marks in Figs. 2 and 3. Also note the plus and minus signs, denoting increase and decrease of the tire-to-runway pressure. The wheel with the most weight on it must obviously have the most effect upon the direction in which the plane will go.

With toe-out, Fig. 2, the airplane is caused to move in such a direction that the tendency is to minimize the centrifugal force applied to the

LANDING GEAR – TOE IN, TOE OUT? *(Continued from previous page)*

CG by a swerve, and the reason is that the left hand wheel has the greater load and pulls away from the incipient swerve to the right. The tendency for this layout is to pull the plane back to a straight, stable course.

But when there is toe-in, Fig. 3, the effect of greater weight on the outboard wheel is to make the swerve become tighter. Even where there is no swerve, it is possible down on one wheel first, rather than on both at the same instant to touch. If the plane in Fig. 3 touched down on its left wheel first, that wheel would immediately impart a force tending to drift the ship to the right. The high CG would then go right to work to make the ship lean to the left, further increasing pressure on the left wheel. The forces triggered by landing on one wheel can amplify so quickly that it would be a lucky and highly skilled pilot that was able to stop it quickly enough to prevent a bad ground loop.

With toe-out, corrective force for small tendencies to swerve are automatically fed into the force system as soon as they appear, and the corrective effort tends to amplify itself such as to give the pilot time to make appropriate control movements. In swift, jumpy little airplanes, even a fraction of a second leeway can make the difference between an uneventful landing and a severe ground loop.

In the accompanying sketches, the amount of toe-out has been exaggerated for clarity. My suggestion for practical application of the toe-in, toe-out lessons imparted by this article is to check and double check the completed, installed landing gear on your airplane to make sure there is no treacherous toe-in. It would do no harm to put in a little toe-out. About one or two degrees out to represent a good compromise, for too much toe-out would, in spite of affording a very stable landing roll, introduce the disadvantages of excess tire wear and slight drag on the take off run.

If this piece saves just one amateur-built light plane, or any plane, from grinding a wing upon landing, I will feel my effort has been justified!

Here and There: Photos and Friends

Allan Logan (on right) greeting a friend beside his Mooney

Lars Oyno flying his homebuilt MCR01

POTLUCK FEBRUARY 7, 2009

Last year's potluck was a huge success—don't miss out.

Plans are in the works for this year's Fourth Annual Chapter Potluck Dinner! Last year's event was a lot of fun for members and their invited guests as we learned to test fly a Harrier jet@ So mark February 7 on your calendars!

The format is simple. You will be asked to provide a main course, an appetizer or dessert.

An entertaining guest speaker is a usual part of the evening and in past years we have been fortunate to have speakers who can entertain everyone including the "non-aviation guests"

The executive is actively planning this year's celebration so either attend this month's meeting or visit our website for more details.

Paul Gregory, Editor

Chapter Waypoints

Make sure you visit the website for more info! www.eaahighriver.org

EAA CHAPTER 1410 HIGH RIVER, ALBERTA, CANADA

We are an enthusiastic group of like-minded individuals from various backgrounds who share a passion for recreational aviation in Southern Alberta. Whether you have a casual interest in aviation, you are an active pilot, or you are an avid homebuilder of aircraft, we offer the chance to meet others who combine fun with learning. We meet to learn from informative speakers, participate in various social activities, and are active in the flying community. Come by and visit!

Chapter Memberships are $40 for singles and $50 for families with a membership in EAA. Contact Marv or any of the following chapter volunteers

Role	Name	Phone	E-mail
President	Jeff Seaborn	(403) 720-6554	jseaborn@telus.net
Vice President	Lars Oyno	(403) 282-2150	lars.oyno@chevron.com
Treasurer & Membership	Marvin Fenrick	(403) 242-2096	mdfen56@telus.net
Secretary	Andrew Crocker	(403) 510-1769	anmcrock@telusplanet.net
Community Outreach	Eileen & Rob Griesdale	(403) 395-3739	eileeng@platinum.ca
Newsletter Editor & Webmaster	Paul Gregory	(403) 271-5330	eaahighriver@shaw.ca

How to join...

- ✓ Attend our next chapter meeting. Ask for anyone and they will be pleased to help. All the required forms and such will be available for you to fill out.
- ✓ You must be a current member of EAA International so please have your EAA membership number - if you aren't a member you can join EAA at the meeting.
- ✓ Contact us by email, or post at EAA Chapter 1410, Box 5280, High River, Alberta, T1V 1M4. We can send you the forms for you to register.
- ✓ Call us. You can call Marv Fenrick (see left).
- ✓ Print, fill-out and mail or fax the form on our website to register. (www.eaahighriver.org)

PRESIDENT'S MESSAGE (CONTINUED FROM PAGE 1)

Jeff with his two sons before the RV-7 was assembled

The list goes on. You're only limited by your imagination. This year, be an adventurer, carry the spirit forward.

I have a couple of goals for 2009. My first big goal is to fly my RV-7 to AirVenture with my oldest son, Connor. Of course, to do that, I have to finish construction and get it flying. To do that, there are many smaller goals and steps along the way.

My second big goal is to provide continued leadership for this great chapter. To that, I'd like to thank the outgoing and past executive for the great inspiration and support. We have a strong membership, a strong sense of direction, and a strong sense of adventure. Let's keep it that way.

To another great year, a special year in Canadian aviation.

Jeff Seaborn
President
Chapter 1410 High River