Valley Flyers

"Just Plane Fun!"

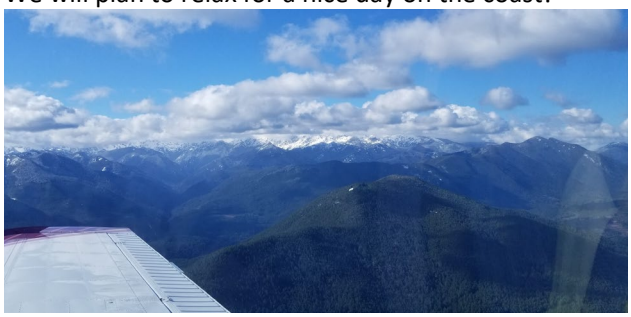
885 Lancaster Dr SE
Salem, OR 97317

February 2019

Monthly Events

For March we will do a fly out to Newport for the weekly BBQ they do for lunch. We will fly out on March 16th, leaving Salem at 11 am. Newport (KONP) is only about half an hour west of Salem, and they do this BBQ every Saturday.

For April, we will do a fly out to Nehalem Bay for a day on the beach. We will plan to fly out on April 27th, leaving at 9 am. Nehalem Bay airport is located on the bay, and has campsites on the airport. It is about a 10 minute walk from the tie downs to the beach itself. We will plan to relax for a nice day on the coast!



Olympic Mountains – Chris Eriksson

Oil Capacity for our Aircraft

By Chris Eriksson

Just a reminder, although aircraft oil capacities specify a range of allowable oil levels, aircraft tend to have an oil capacity at which they run best. For our 172s and our PA28, although the range specifies 6 qts being the lower end, they tend to reduce their oil quantity to just over 6 qts and stay there for hours. If you fill the aircraft up to 7 or 8 qts, the only thing that will happen is that they will spit out or burn the oil down to their happy place of 6 qts. So unless you are doing a long flight, if the oil is right at about 6 qts, leave it there until it has begun to burn down under the 6 qt mark, and then only fill it to about 6 and a half. The 182 has a different range, but follows the same principle. The 182's happy place tends to be right around 8 qts of oil.

More Right Rudder, more right rudder …

By Alan Lasneski

There are tons of great articles on left turning tenencies, and as always we should read them and challenge our understanding of them every so often. You know them as Torque, Spiraling Slipstream (Corkscrew) , Gyroscopic Precession, and P-Factor (Assemetrical Loading). But this article is about those four different forces and how much each applies to the different phases of just the take off, but with a twist contrasting and comparing the tricycle gear to the tail wheel gear aircraft. I had the opportunity to learn to fly a 1947 Interstate Cadet and it challenged my basic understanding of those forces during the take roll phases. Infact it challenged me to the point where as an engineer I needed to do this contrast and compare in my head to fully understand why I was having so much trouble initially learning to take off a tail wheel airplane. I did find a really awesome book that is a good read even if you never intend to fly a tail dragger, it is "The Compleat Taildragger Pilot". It is 12 stars out of 10, no kidding. But be prepared to go deep into the subject.

For this article I'm just going to focus on the take off phases contrasting the tricycle gear to the tail wheel gear (the taxiing and landing phases may be future articles). I'm going to use relative indications to compare them, this article is based on my experience and is intended to spark interest in those wanting to understand more. There are many details of different aircraft, engine size, propeller size which can change the relative ratings.

Sunset over the coastal range

Al Gray CFI	Chris Eriksson CFII	Todd Lindley CFII	Max Duke CFII	Dennis Wyza CFII
503.932.9374	847.345.5258	425.681.9994	949.690.6997	503.428.7111

	Initial application of full power				Initial roll low speed				Tail wheel rises up				High speed roll				Lift off			
Tailwheel gear	Torque	Slip	Gyroscopi	P Factor	Torque	Slip	Gyroscopi	P Factor	Torque	Slip	Gyroscopi	P Factor	Torque	Slip	Gyroscopi	P Factor	Torque	Slip	Gyroscopi	P Factor
	✈			headwind	✈	✈		✈✈✈	✈	✈✈	✈✈✈	✈✈	✈	✈		✈✈	✈✈	✈	✈	✈
Tricycle gear	Torque	Slip	Gyroscopi	P Factor	Torque	Slip	Gyroscopi	P Factor	Torque	Slip	Gyroscopi	P Factor	Torque	Slip	Gyroscopi	P Factor	Torque	Slip	Gyroscopi	P Factor
	✈				✈	✈			N/A	N/A	N/A	Nj/A	✈			✈	✈✈	✈	✈	✈

	Initial power application	Initial roll low speed	Tail wheel rises up	High speed roll	Lift off
Tailwheel	1 or 2 Depends on if a headwind component exists	6	11	5	5
Tricycle	2	2	N/A	2	5

For demonstration purposes let's sum the values contributed by each above for an easier table to digest.

From this table you can see why tailwheel pilots describe a "dance" on the rudder pedals while they are on their takeoff roll. This also shows the tricycle gear aircraft are very forgiving on us not requiring a lot of work on take off, and why a pilot transitioning from a tricycle gear to tailwheel will have a much harder time then a tailwheel to tricycle gear transition pilot will have. For the tailwheel the contributing factors are constantly changing by the phase where as on the tricycle gear they are not changing that much .

Torque effects on the takeoff are primarily due to the increase of drag on left wheel upon the reaction to the action of propeller rotation.

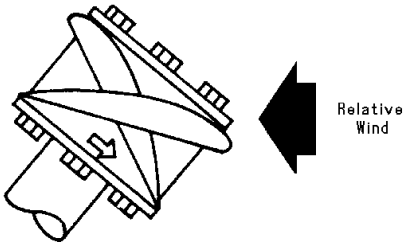
Slipstream effects on the takeoff are primarliy due to the rotational airflow striking the left side of the vertical stabilizer. At low speed the slipstream has more rotational effect on the vertical stabilizer then as speed continues to build (i.e. high speed roll).

Gyroscopic precession effects on initial takeoff are primarily due to the raising of the tail on the tailwheel aircraft hence a force is applied directly to the top of the propeller which 90 degrees in the direction of rotation is where it's left turning tendency results. Tricycle gear does not normally change a force on the propeller during takeoff roll. Both landing gear types have similar precession once airborne by the application of the elecvator or rudder. What amplifies this precession force on a tail wheel aircraft is that once the tail wheel rises there is only a single point of rotation to the ground, where as on a tricycle aircraft all three wheels are still on the ground (until lift off) resisting the turning effects of precession tendency.

P-Factor effects on the takeoff are primarily due to the relative wind to the angle of the propeller blades, i.e. it's AOA. It can be seen that a tailwheel geared aircraft sits tail low, hence the tail wheel aircraft's propeller will have a significantly higher AOA on one blade on initial power application compared to a tricycle which sits more level to the relative wind. Its

Al Gray CFI 503.932.9374 | **Chris Eriksson CFII** 847.345.5258 | **Todd Lindley CFII** 425.681.9994 | **Max Duke CFII** 949.690.6997 | **Dennis Wyza CFII** 503.428.7111

also called assemetrical loading as the following picture shows that one blade is getting more of a "head wind" which is giving more lift to this blade versus the other blade is more receiving a "tail wind" effect. Again what will amplify the P-Factor force on a tail wheel aircraft is that once the tail wheel rises there is only a single point of rotation to the ground, where as on a tricycle aircraft all three wheels are still on the ground (until lift off) resisting the gyroscopic force of the descending blade.



I'll admit it's hard to write a news article without too much information but hopefully those that are ready to digest this, are ready to dive in more. Again, the book "The Compleat Tailwheel Taildragger Pilot" will fill that hunger for more information.

Coastal Range in Snow – Chris Eriksson

Take Care of the Interior

5ED's interior upgrade is just about complete. We are putting it back online while still waiting for a few parts to come back together. Please be careful with the interior, use pencils instead of pens when possible, and when getting in and out of the plane, watch that you don't kick the side pockets and damage the new interiors. We have new carpets, plastics, vinyl's, and seats. It has been a lot of work for our members to upgrade the interiors ourselves, let's keep it nice!

Cold Weather Starting

By Al Gray

Just a reminder on cold weather starting. After your pre flight and after pulling the prop through provided you have had some instruction on pulling the prop through. Make sure all electrical is off, prime 3 to 4 times, pump throttle once then bring throttle back to cut off position. Make sure mixture is full rich. Quickly try starting the plane. If it doesn't want to start after 3 or 4 seconds of trying then stop. Prime one more time then try again and pump throttle once while trying. The main thing is to not to run the battery down by turning the engine over continually when its not showing signs of starting. If it still doesn't want to start, let it set a few minutes , then try again. If all fails please call me.

Its also a good idea to not sit and listen to ATIS or have any electrical on before trying to start the plane other then what's necessary. Especially in the winter time. Thank You

New Hangar Doors

By Joan Johnson

The hangar doors for 12382 and 515ED have been replaced with new lightweight doors.

When opening or closing the doors we have all put our weight into it to get them to move. The new ones need to be walked to their position not shoved. Each door has an interior lock in addition to the pegs in the floor. When opening the doors you must release the locks first before removing the pegs and sliding the doors. When closing the doors you must place the pegs and then attach the interior locks.

Please treat them gently.

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