CASCADE FLYER

Website: http://co-opa.rellim.com/ **December 2005, Vol. 05, Issue 12**

President's Message:

Omigosh, another year is almost shot. Just a few more things to get out of the way before 2005 ends, whether we are ready or not. One of the most looked forward to, of course, is our own famous annual Holiday Bash! Only the best are invited and you are all invited!

By popular demand we will follow the age old traditions of our Chapter. The gathering will start at the usual 6:00pm for hanger flying, 6:30pm there will be our potluck. The club will provide the main dish and the membership will provide the rest of the trimmings. At 7:00pm we will have a short business meeting. One of the things to discuss is our Christmas Fund ably managed by Don and Norma Wilfong on our behalf.

Then comes the main event, the Yankee Swap. Everyone that wishes to participate must bring an aviation related gift. Items need not be new. Maybe there is some unused, but valuable item in the bottom of you flight bag that just needs a new home? Maybe you have gotten tired of the tail wheel spring you took home last year? Wrap it up and bring it to place beneath our pagan Yule Tree.

This is one of our most fun events of the year so do not miss out!

The November meeting also turned out very well. We played the first three DVD clips from Kurt Anderson's "Practical Density Altitude". We stopped frequently to share our thoughts and then watched as Kurt laid out his thoughts. Usually when we turn the lights out the crowd melts away but not that night. From the comments I heard everyone thought they gained a lot from the experience. There are 6 more parts to the video and it looks like we will play some more of it in 2006. Several pilots requested copies and they will be available at the Holiday Bash.

Even as 2005 ends the planning for 2006 is well underway. If you have any program ideas for our meetings then please send them in.

Calendar:

15 December - Monthly Meeting - XMAS Party
17 December - Monthly Flyout

19 January - Monthly Meeting
21 January - Monthly Flyout

16 February - Monthly Meeting
18 February - Monthly Flyout

16 March - Monthly Meeting
18 March - Monthly Flyout

20 April - Monthly Meeting
22 April - Monthly Flyout

18 May - Monthly Meeting
20 May - Monthly Flyout

2-3 June - FAA Fly Safe Clinic
9-11 June - Balloons Over Bend
17 June - Bend Airport open house

Web doings:

The Oregon Department of Aviation has placed the data from the Oregon Airport Directory online. This is probably one of the best sources of detailed airport data out there. Sadly the photos have been broken on the website for over a month and it has been completely dead for a week. You can find a link to the ODA Online Airport directory on our links page. With luck they will be back on the air by the time you read this.

As always, the CO-OPA website contains recent newsletters and other goodies.

http://co-opa.rellim.com

To access the members only areas the username is "S07" and the password
is "123.0".

My Inbox:

As we learned in last month's newsletter, the plans for a flight safety clinic at Bend Airport on 2 June are well underway.
Dennis Douglas of our local EAA chapter is heading up the effort and he needs some help. You can contact him by email at ddouglas@coastside.net or by 541-322-9453. If you are interested in helping then get in touch with him quickly as he wants to get an organizational meeting out of the way before Christmas. June looks to be loaded with aviation events in Bend (see the calendar above).

Random Thoughts:

If you have been paying attention to the Internet world then you know that blogs and wikis are all the rage now. A blog is like an online diary that allows others to post comments on the daily ranting of the author. A wiki is an online text that anyone can edit. If you read a wiki page on a topic, and you feel it is incomplete or inaccurate you can just jump right in and change it. One well-known and very popular wiki is at http://wikipedia.com.
Wikipedia is an open collaboration any one that wants to help that is creating an online encyclopedia.

In the spirit of blogging and the wiki I have launched a new wiki style web site at
http://iflyoregon.com.
The intention is to eventually document all the fun things to do at Oregon airports. When I first moved to Central Oregon it took much hanger flying, and many Don Patrols, to learn some of the great places to fly to in the area. Now I still find new things to do at airports I thought I knew.

This wiki is not about how long the runways are or when the FBO is open, but rather about what to see and do in and around that airport. The $100 hamburger and beyond, the best museums, the best dog friendly beaches, the best waterfalls, and all within easy reach by walking, courtesy car or other easy transportation.

'Iflyoregon' just mentions a few airports for now and more are being added as time allows. Please check out the work in process. Hopefully you will learn something about one of our Oregon airports. Then get in to the wiki spirit. Something will strike you as missing, incomplete or just plain wrong. At the bottom of every page is an "Add Comment" button where you can add your own comments. The brave can jump right in an actually edit the pages. If that seems a bit too geeky, or public, then just email me a tasty tidbit to use.

Gary Miller

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NOVEMBER FLY-OUT !!!

Plans were made to fly to Gold Beach...the weather was beautiful here and at Gold Beach...but....all of the valleys, and airports between here and there were blanketed in fog....so....we altered our plans and went to Klamath Falls....

As usual, we all met at the Flight Shop and the decision to go to K. Falls was made. As we prepared to depart more flyers showed up until we had good group to go along (it is always more fun with several planes and people). We had 6 planes and 11 people: Mike and Ann Bond in their Cardinal RG, Joel and Lynn Premselaar in their V-Tail Bonanza, Bill and Betty Witt in their Skylane, Jack Kohler in the "Tweety Bird" (his Yellow RV), Gary Miller in his Turbo Centurian with Ed Endsley and Gary's two dogs and Don and Norma Wilfong in their Skylane.

We kept the airways busy with the friendly chatter between planes..."where are you", "I see you now", "what is your bearing, distance & altitude" and all the other many things we say to each other. It was a beautiful flight and some of the planes flew close enough to each other for Ed to get some good photos...

Parking at K Falls is quite close to Bailey's Café, which sits above the Airline Terminal with a great view of the ramp and the runway.

The Café is under fairly new management, the service was great, the food was good and the conversation was fun and entertaining.

Everyone kinda picked their own route home...we flew over Crater Lake and I don't recall ever seeing the water so perfectly placid, it was like a mirror. Norma took some beautiful shots.

Don Wilfong

COOPA SAFETY CORNER

By Joel Premselaar Photos: Ed Endsley

As a consequence of Thanksgiving dinner, my center of gravity gravitated sufficiently to my midriff to become a grave concern. If Christmas treats treat me in similar fashion, "grave" will be the operative word! The Holiday Season is not conducive to rational behavior. I've struggled in vain to address a single meaty subject in this issue (Egad! I can't get away from thoughts of food!); instead, I'll jump around several topics (I need the exercise).

Despite the frivolous opening paragraph, it alluded to a subject I wish to discuss briefly in this article; i.e., "center of gravity." I know that there are good reasons for missing some of our meetings. I'm as guilty of that as anyone, but I am concerned that in the doing, safety related material discussed is lost. Our last meeting was full of exchanges relating to mountain flying dos and don'ts. Aerodynamics, c.g., trim, flaps, radius of turn (especially as it relates to narrow canyons), wind effects, and much more was addressed. I'll try to touch on some of these. Don't let the following technology scare you. Just take out your old texts and track me one step at a time. This stuff is important. I contend that many who chose to defy gravity have paid the supreme penalty because of a deficiency in our training.

O.K. Let's get into this c.g. thing again. I am assuming that early in your flight training, you learned that an airplane in flight moves about its c.g. Mostly, the pilot sits close to the c.g. Be sure that Burp Bags are convenient to the back seaters. Also, we learned that as the distribution of the aircraft's weight changes, the c.g. moves accordingly. Let's agree that, during this discourse, the c.g. is always within its safe envelope unless stipulated otherwise. As the c.g. moves forward of the center of lift, a greater amount of downward lift is required by the tail (forget canards) with it's associated drag and nose up trim. The converse is also true; i.e., c.g. aft, less downward lift by the tail is needed, resulting in less drag and nose up trim. Less drag equates to greater airspeed. There are penalties and benefits to be had with this knowledge. You can become a control freak. I won't get into moment arms, so trust me.

When the c.g. is forward, stability is better but drag is greater. When the c.g. is aft, stability is less but speed and range is greater. (Powder puff derby contestants listen up. After takeoff, have your copilot move to the rear seat. Remember to have her come forward for the landing.) There is an ahah! to this. Control forces decrease significantly with an increase in airspeed. Need I mention the reverse situation?

There's nothing like an example. The aux tanks in my Bonanza are aft and outboard of the mains. Cross-country -- use mains first. Instrument flying and best stability - use aux tanks first. Of course, load passengers and baggage accordingly

During the flyout to Klamath Falls for breakfast on the Saturday following our last COOPA meeting, Jack Kohler in his Tweety Bird and my lady and I in my Bonanza flew formation on Gary Miller and Ed Ensley in Gary's 210.

I flew both parade and combat formation on both Jack and Gary. Parade is as tight as you can get without exchanging paint with one another. Combat is a very loose formation. To synchronize your propeller with the leader's, look at his prop arc through the arc of yours; then, using stroboscopic effect adjust your RPM to stop his prop. You then adjust your power and trim to maintain position. Once established, only minor adjustments are needed. For instance, as the flight leader makes, lets say a 90° turn, the wingman is directly under him at 45° and on the other side at the completion of the 90° turn. That eliminates power adjustments.
During breakfast (I was polite and didn't talk with my mouth full - - I just thought you'd like to know that) we discussed formation flying.

SAFETY CORNER - continued

The subject of **trimming for precision flying** evolved from the conversation re flying parade formation flying. I presented a trimming method for pitch I deemed essential for precision flying. In the course of the discussion, I realized that here again was a deficiency in training programs. How many of you recall your flight instructor's chant "Trim,Trim,Trim!?" Did any of them describe how to trim for specific applications? Most pilots trim for hands off. That may be fine for sustained straight and level flight; however, for precise flying such as instrument, maneuvering (lazy eights, turns around a point, etc.) or formation work, one should trim nose down with not less than about three to five pounds against your hand. Every time you load or unload the pressure you'll receive a gratifying feedback and an instant aircraft response. Feedback provides a sensual (No! Not that kind, it's the sensory kind) queue. It's like feeling and/or hearing a click when you press a button or flip a switch. The aircraft response is immediate because there is no: dead area, backlash, slack control connections, or breakout force (Hydraulic controls) with which to contend (hey folks, did you notice the way I avoided ending the sentence with a preposition? {yeah, I know, ending with a preposition is now acceptable, but I'm not Churchill. If you don't know the Churchill thing, ask me about it}). "Hey, what's this thing about slack control connections?" Well, let's assume you're in Phoenix, AZ in the summer and the temperature is 115° F as opposed to Butte, MO in the dead of winter and the temperature is - 50°F (yes, that is minus 50°F), so I'll ask you, "What don't you understand about expansion and contraction?" There's more to this business of trim, but I'd better get on with the subject that generated a lot of interest and discussion at the last meeting.

Turn radii and pull outs from a dive. They have two operative things in common - - airspeed and Gs. Turns in canyons was a lively subject during the previously mentioned meeting. I go back to my pet statement; "Flight planning, flight planning, flight planning." With that, there's no excuse for getting trapped by narrowing canyons. When flight planning, take into account the time of day; e.g., canyon winds develop as a result of diurnal cooling. When convective activity ceases, the heavier cool air moves down the canyon. If there is a restriction in the canyon, the Bernoulli effect will cause high winds and reduced pressures that will affect altimeters. Factor into your planning density altitude and altimeter errors due to very cold temperatures (ask me for a chart quantifying temperature vs. altimeter error), know your turn radius for each viable aircraft configuration, check your sectional for the contour lines on both sides of the canyon, measure the distance between opposing sides to determine your dead end (and I do mean dead) turn around point.

Pull-out Radius

Acceleration—Gravities	Velocity—Knots 180	200	220	240	260	280
2	2871	3544	4288	5103	5989	6946
3	1436	1772	2144	2552	2995	3473
4	957	1181	1429	1701	1996	2315
5	718	886	1072	1276	1497	1737
6	574	709	858	1021	1198	1389
8	410	506	613	729	856	992
10	319	394	476	567	665	772
12	261	322	390	464	544	631
15	205	253	306	365	428	496
18	169	208	252	300	352	409
20	151	187	226	269	315	366

Acceleration—Gravities	Velocity—Knots 300	320	340	360	380	400
2	7974	9073	10242	11483	12794	14176
3	3987	4537	5121	5742	6397	7088
4	2658	3024	3414	3828	4265	4725
5	1994	2268	2561	2871	3199	3544
6	1595	1815	2048	2297	2559	2835
8	1139	1296	1463	1640	1828	2025
10	886	1008	1138	1276	1422	1575
12	725	825	931	1044	1163	1289
15	570	648	732	820	914	1013
18	469	534	602	675	753	834
20	420	478	539	604	673	746

$$\text{Gravities} = 1 + \frac{.0886V^2}{r} \qquad (\delta R)\, G-1 = .0886V^2 \qquad (\delta R)\, r = \frac{.0886V^2}{G-1}$$

where: V = velocity in knots
r = pull-out radius in feet

PULL-OUT RADIUS (FEET) AT VARIOUS VELOCITIES AND ACCELERATIONS

The table and formula above express ratio of apparent weight to actual weight at bottom of pull-out.

Here's one for you; if you do find yourself in trouble and the headwind component exceeds your Vso by some measure, simply back up. Think that's weird? Consider this: everyone knows how windy it gets in Kansas, so before WW II the ingenious Kansans instituted an annual "backward air race" paralleling a road between two Kansas towns that were 10 miles apart. Airborne and facing upwind, the competitors lined up abreast over the upwind town. Upon the firing of a green flare from a Verys pistol, the race would start. The first aircraft to reach the center of the downwind town was the winner!

Unplanned, suburban canyon turn?

Turning Radius turn radius at various velocities and accelerations

Table and formula express ratio of apparent weight to actual weight in correctly banked turn.

Velocity Knots	Acceleration—Gravities									
	2	3	4	5	6	8	10	12	15	20
150	1150	704	514	407	337	251	200	167	133	100
200	2045	1252	914	723	599	446	356	296	237	177
250	3195	1957	1429	1130	935	697	556	463	370	277
300	4601	2817	2058	1627	1347	1004	801	666	532	399
350	6262	3835	2801	2214	1833	1367	1090	907	725	543
400	8179	5009	3658	2892	2395	1785	1424	1185	947	709
450	1.70	6339	4630	3660	3031	2259	1802	1499	1198	898
500	2.10	7826	5715	4518	3742	2789	2225	1851	1479	1108
550	2.55	9470	6916	5467	4527	3375	2692	2240	1790	1341
600	3.03	1.85	8230	6507	5388	4016	3204	2666	2130	1596
700	4.12	2.52	1.84	8856	7334	5466	4361	3628	2899	2172
800	5.38	3.30	2.41	1.90	9579	7139	5695	4739	3786	2837
900	6.81	4.17	3.05	2.41	2.00	9036	7208	5998	4792	3591
1000	8.41	5.15	3.76	2.97	2.46	1.84	8899	7404	5916	4433
1500	18.93	11.59	8.47	6.69	5.54	4.13	3.30	2.74	2.19	9974
2000	33.65	20.61	15.05	11.90	9.85	7.34	5.86	4.87	3.89	2.92
3000	75.72	46.37	33.86	26.77	22.17	16.52	13.18	10.97	8.76	6.57

Note: Figures above line in feet—below line in nautical miles.

BANK ϕ $\cos\phi = \frac{1}{n}$

Gravities $= \sqrt{1 + \frac{.00784V^4}{r^2}}$ where: V = velocity in knots, r = turn radius in feet

Bank angle in coordinated turn	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°
Load factor	1.0 G	1.02 G's	1.06 G's	1.15 G's	1.31 G's	1.56 G's	2.0 G's	2.92 G's	5.76 G's	infinite
Stall speed increase	0%	1%	3%	7%	14%	25%	41%	71%	140%	infinite

NOTE: Load factor = 1 ÷ cosine of bank angle,
and stall speed increase = square root of load factor

Table II

True Airspeed \ Bank Angle	10°	20°	30°	40°	50°	60°	70°	80°
50 knots	3.8°/s 1,259 ft	7.9°/s 610 ft	12.6°/s 385 ft	18.3°/s 265 ft	26.0°/s 186 ft	37.8°/s 128 ft	60.0°/s 81 ft	124°/s 39 ft
100 knots	1.9°/s 5,037 ft	4.0°/s 2,440 ft	6.3°/s 1,538 ft	9.2°/s 1,058 ft	13.0°/s 745 ft	18.9°/s 513 ft	30.0°/s 323 ft	61.9°/s 157 ft
150 knots	1.3°/s 1.9 nm	2.6°/s 5,490 ft	4.2°/s 3,461 ft	6.1°/s 2,381 ft	8.7°/s 1,677 ft	12.6°/s 1,154 ft	20.0°/s 727 ft	41.2°/s 352 ft
200 knots	1.0°/s 3.3 nm	2.0°/s 1.6 nm	3.1°/s 1.0 nm	4.6°/s 4,234 ft	6.5°/s 2,981 ft	9.4°/s 2,051 ft	15.0°/s 1,293 ft	30.9°/s 626 ft
250 knots	.8°/s 5.2 nm	1.6°/s 2.5 nm	2.6°/s 1.6 nm	3.7°/s 1.1 nm	5.2°/s 4,658 ft	7.6°/s 3,205 ft	12.0°/s 2,020 ft	24.8°/s 979 ft

Effect of True Airspeed and Bank Angle on Rate of Turn and Turn Radius

(Numbers in shaded boxes are rates of turn, numbers in boxes not shaded represent turn radius

$$\text{Rate of turn (degrees/second)} = \frac{(1{,}091)\ (\text{tangent of bank angle})}{(\text{true airspeed in knots})}$$

$$\text{Turn radius} = \frac{(\text{true airspeed in knots})^2}{(11.26)\ (\text{tangent of bank angle})}$$

Cousin Ed's Aeronautical Adventures

My cousin Ed isn't a pilot but he has employed many. Ed is an ex-military logistics officer and doesn't hesitate to encourage (tell) people to do what they should do. He has directed several businesses with hundreds of staff so the guy has experience.

These stories have to do with his taking situational control when he deemed it necessary for everyone's wellbeing. Sometimes you need a little help from your friends. This is about cockpit resource management. Good examples of mindful thinking. Some might say common sense but in some ways more closely related to the strangely named digital age concept of Fuzzy Logic. You don't always need THE one right answer, at least right away. A pretty good, approximate answer, that moves you in a good direction is better than jumping to an incorrect conclusion. With the ensuing results you can then make midcourse corrections and maybe get better answers as the situation proceeds. Military pilots have a phrase "restacking the deck", referring to dealing with the most important things first and then reassessing. I think it was astronaut Alan Bean who, while discussing aerial troubleshooting said, "Is this thing still flying?" If so, you still have some work to do. If not, hmmm. Don Mobley has said to fly it all the way to the crash. His implied message is that you might find some good answers along the way. Besides, if you find a way to minimize the incident, your explanation to the FAA will be easier. If you don't, you may have to explain it to God. I understand he's very forgiving but it better be good because all your passengers are going to be standing right behind you

The first situation I will tell you about happened in the Los Angeles Basin in heavy traffic about twenty years ago. Ed often chartered aircraft to commute around the country for business and pleasure. This time he and his wife were going from the California central valley, south to the L.A. area and as they were descending over the Tehachapi Mountains with radar contact and clearance the radios went dead. Well now what are you going to do? Cousin Ed was not one to wait very long for an answer so he told the discombobulated pilot to fly the plane to the next cleared point and he proceeded to disassemble the panel from the right seat. Remember, this was before "handhelds" and "multitools." So there he sat with a lap full of avionics wondering if this was a wise "approach." But they were still flying and still had options. I mean it was daylight and still VFR, at least by basin standards.

Looking back into the dark recesses it was apparent that there were loose wires. Not a good sign. Yes, you could pop circuit breakers by moving the wrong stuff. Now that'll get your attention. At 24 volts Ed didn't hesitate to dive in. What he found was that some "dumb ass technician", his words, had "twisted" all the radio power wires together with a wire nut to the positive buss. So, twisting it back together and holding this whole mess in his lap, they proceeded to their destination with full communications.

After landing, Ed had a few words with the "pilot." Like you get this fixed by a competent technician and show me a copy of the service order and introduce me to the guy that did the work and I might fly back with you. If you can't assure me that you can do this, then I'll be flying back with someone else. Ed knew how to get what he wanted.

The second episode is a great example of mindful thinking. It occurred in Africa, in the middle of nowhere. A group of sufficient numbers had flown out into the central savanna that several planes were involved. When the arrival time came and went and they were still at altitude Ed began to wonder. "Where are we, Ed asked.". The pilot's response wasn't encouraging and this was reinforced by their meandering course. Ed's pointed question, "are you lost" was answered affirmatively. Well, now what? Fuel, time back, alternatives, none of the above? "Can you call the other aircraft," Ed said. So here's what happened. At first there was no answer so Ed suggested that they climb. At near the service ceiling they started to get a response. So now what? Ed suggested that the pilot ask his compatriots on the ground if they could hear their plane and in which direction. They could hear a plane that sounded like it was a long way to the southwest. So let's try flying to the northeast and see if they hear us getting closer. By this method of Ground Controlled Approach they zeroed in on their destination and made a successful rendezvous. Sure beat spending the night alone in lion country. No word on how they got back home.

Ok, one more story. This time it's about cousin Ed's cousin, Ed. That's me. Got it? Sorry about that. It's always fun to call him and say "Hi Ed this is Ed." Enough already.

This episode happened on my thirty minute cross country flight to the Madras Airshow in 2003. That was the summer of much smoke. As I approached Redmond I called for class D transit and reported three miles visibility in smoke over Hwy 97. I was using my ANA (asphalt navigation aid). Very accurate, if you can read the road signs. Had a nice communication with the tower and was cleared through to the north. I know it was north because that's what my magnetic compass said. Frequency change approved, I started hearing lots of Madras Traffic but couldn't seem to make myself heard. RDM wouldn't respond either. Hmmm. Radio failure, transmitter dead at least. The other transmitter was the same. Only one headset available. No handheld on board. Going into a busy Airshow environment.

Limited visibility. Hmmm. Lets not let too many other things go wrong, like loosing my common sense. Could turning tail and going home make sense? At least there wasn't anyone else with me to ask questions like "where are we." But wait, all is not lost. I hear Mary Shu report three miles west on the forty-five for three four.
Oo, ooo, here was my chance to pull this off. I'd swung wide to the west over Lake Billy Chinook to trouble shoot so I just found and formed up with Mary and did a loose formation on into Madras. Great Airshow, glad I could make it. That's when I took the photo of Tom Ellsberg in the smoky setting sun. A very special opportunity…

The reason I'm telling you this story is that it reveals some major flaws in my mindful thinking. I made several assumptions that blocked my awareness of alternatives. Well yes, I was bothering to fly the plane and navigate in difficult conditions but I don't think I restacked the deck especially well. If Mary hadn't shown up on a timely basis I would have been homeward bound. No Airshow for Ed. Here's the punch line, wait for it now. I met an old friend who lives in Madras who came up to the Airshow and I told him about the problem. We both walked out to the plane and started looking around the panel. I'd told him about both xmitters dead and only one headset to try. He pointed out there were push to talk switches on both yokes. Had I tried both? Well, no actually I hadn't. Oh, and there's the Cessna original hand held mic in it's holder on the pedestal. How about that? Well, uh, actually no. I was starting to feel silly, not just stupid. So we powered up and tried both of his ideas and they both worked. It was just bad wiring to the mic switch. Oh Ed. Now, my friend Dennis has flown with me before and is a pilot himself and someone I've always considered very bright. He proved it again and I learned a very important lesson about tunnel vision.

Well my friends, keep an open mind.

Ed Endsley

An unusual visitor to Bend, a Grumman Widgeon, was photo op for Dennis Douglas from our EAA chapter … in fact he got to fly in it and land (?) on Lake Billy Chinook >>>>>>

DECEMBER FLY-OUT

My thoughts are for a repeat of December last year. We flew to Chiloquin and had the second biggest fly-out I can remember (8 planes and 17 people). We can discuss it at the potluck/meeting/Christmas Party on Thurs. Dec. 15 ... remember to bring a gift to participate in the "madhouse gift exchange"… also remember the Club is furnishing the meat for the potluck so bring a side dish ... our December meeting is always a blast ...

Wishing you all Happy Holidays with blue skies and tail winds for the New Year..

Don & Norma Wilfong