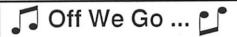


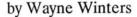
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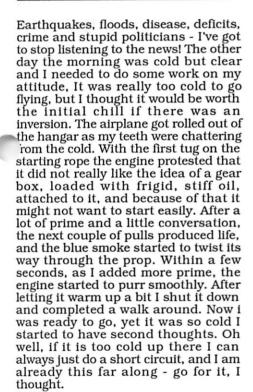


Monthly Newsletter of the Calgary Ultralight Flying Club

# February 1995







By the time I got to the runway ice crystals were starting to form from my nose, not a pretty sight! As I advanced the throttle and the airplane began to accelerate, it jumped into the cold, dense air. What a sensation, climbing like a rocket through the cold air, in hopes that soon a warm layer would develop. At about 500m feet AGL, the aircraft buffeted slightly and then I could feel the air change from frigid to warm. As I climbed another 200 feet ito it I could feel the warm air melting the frost from my face. I looked down and grinned as I thought of the poor land-locked slobs below, freezing their butts off. I was grinning like a kid with a new toy as I saw the snow start to

melt off my boots. With a glance at the aircraft outside air temperature gauge I was surprised to see a wonderful 47 degrees F. In the next couple of minutes an hour slipped by and I did not want to return to the ground, but I could handle it now because my therapy session had made a new man of me and the external problems were not as hard to accept anymore. I think I will schedule some more therapy for tomorrow!

#### **783 Wing**

The meeting space that we use, in conjunction with other clubs, is working out extremely well. Lets keep in mind that they can use our support as associate members. What they have made available to us is an associate membership at the low, low price of only \$10.00. This associate membership in the 783 Wing helps support them and give you the privileges associated with membership in their organization. The 783 Wing and the C.U.F.C. want to make sure that you realize this is not mandatory nor required, but if you wish to join as an associate member you can give your \$10 to Gord Tebbutt and he will forward it to the Wing.

#### Spins

At our December meeting we watched a video that Larry Motyer brought, which discussed aerobatics. Something that I wanted to draw to your attention in last month's column, but forgot, was that the early aerobatic pilots used to jump out (parachute) of their airplanes when they got them into a spin, because they did not think that it was possible to recover.

It took about 20 times of doing so and watching the airplane recover on its

own without anyone at the controls, before they realized that all they had to do (in most airplanes) was to let go of the controls and let the airplane fly itself out.

#### The January Meeting

We had an enthusiastic full house crowd once again. It was good to see a few faces that we haven't seen for some time and it is always interesting to get caught up on what is new in everyone's flying life. There were a lot of earth-stopping issues that had to be addressed, like making the final arrangements for our annual January party. (Be sure to watch for incriminating photos in the next Skywriter.)

The door prize program is working extremely well and we thank those who support it, run it, and donate prizes. The club doesn't operate on a big budget and it is nice to have a few sheckles available to help out the 783 Wing, etc. The update session on airplane kits in progress was, as always, very interesting and I can speak as a builder that it does help us motivate ourselves along on those seemingly (sometimes) endless projects.

We concluded the meeting with a confession session and 2 videos. One of my trip to Arkansas to show the E-Z Flyer and the other of the Genesis Airplane, brought in by Don Rogers.

#### GET S.E.T. Workshop

Don't forget the Alberta Aviation Council's Workshop on February 17, 18 and 19th. It will be held at the Marlborough Inn.

#### View and Tell

Elsewhere in this issue of the Skywriter, watch for a date that we will be able to go and view 3 or 4 of our members' kits that are in various stages of construction.

(continued on page 2)

(Off We Go - continued from page 1)

Following is a list of some of the kits and rebuilds that are in progress.

- 3 Rebels
- 2 MiniMAX's
- 1 HIMAX
- 1 Fisher single
- 1 Beaver 650
- 2 Renegades (1 rebuild)
- 1 Pelican Club
- 1 Davis (rebuild)
- 1 E-Z Flyer
- l Europa

Please let me know of any that I have missed.

## Egg On Face

During WW2 I was a Radio Operator flying north Atlantic patrols in the old Digby (armed DC3).

One night on a routine patrol the windshield in front of the pilot exploded (rather imploded) as a Sea Gull rocketted through the cockpit, narrowly missing the pilot on its way to the rear bulkhead. Coming to an abrupt halt at the bulkhead the bird disintegrated into a spray of blood and guts.

The Radio Operator (yours truly) was generously coated in fowl parts and blood.

I wonder; is that how the expression "egg on the face" originated?

Bob Kirkby - Senior

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Skywriter is the official publication of the Calgary Ultralight Flying Club and is published 12 times per year. Opinions expressed by our writers are not necessarily those of the club. Articles and letters to the editor are very welcome from any readers. Address correspondence to: Bob Kirkby, RR 7, Calgary, AB T2P 2G7 or Fax to 403-291-1112.

Meetings of the Calgary Ultralight Flying Club are held the first Wednesday of every month at 7:30pm

R.C.A.F. Association 5430 - 11 Street N.E. Calgary, Alberta

# **Project Visits**

Saturday, February 11, is Project Visiting Day. An organized tour of three projects in the city has been organized and everyone is invited. The first visit starts at 0900 hours local time and the group will proceed on from there at a leisurely pace.

Stop #1: Ted Orlick's Pelican project

Ted's address is 3 Ogmoor Place S.E. - call 279-7623 if you get lost.

Stop #2: Stu Simpson's Hi-MAX project

Stu's address is 37 Arbor Crescent S.E. - 255-6998.

Stop #3: Bernie Kespe's Renegade project

Bernie's address is 6 Spokane St. S.W. - 255-7419.

If you car pool it you'll save gas and have more fun!

# A Little Prop Wash

by Douglas J. Ward



I have had some thoughts regarding the fact that all the "Skywriters" contain some information from me which could be "oldhat" to the members who attend our meetings, but possibly news for those who can't attend. I think I do come up with some pretty good stuff on my own, (at least I haven't had any lawsuits against me for Plagiarism yet). As I hope most of you will remember, I named my articles "A Little Propwash" because I was in the process of building an airplane at the same time I took on the obligation of faithfully submitting an article to the Skywiter each month. Due to the fact that during this building process (which unfortunately is still going on). I was unable to fly, I felt that I was behind everyone else in the club who was flying. Hence "A Little Propwash". I should remind everyone that I am still in everyone else's propwash.

Now I would like to submit some Predictions for '95 and perhaps some for the future. I know that this is an Ultralight newsletter, but all things in imy life do not always pivot around Jitralights. Are you ready, 'cause here they come.

Prediction One: We had a great 3rd Annual (although belated) Christmas Party. The attendees all enjoyed the delicious Potluck supper, the Karaoke (many thanks to Ross Collette and wife Darlene for the donation of their services and Karaoke equipment), the Silent Auction, the Flight Simulator (it's not really the same), but for me it

should be called the Flight Stimulator, and all the other deviations from reality which were offered to the partakers. We showed a good profit from the Silent Auction. Many thanks to the Air Force Association for allowing this group of Ultralight people to get together for a wonderful night of socializing in their great new facility.

Prediction Two: Doug Ward's front lawn is going to get fixed. Somehow it was just unable to stand up to the terrific weight and movements of the backhoe hired to dig up my 45 year old plugged up sewer pipe. Somebody told me that if you soaked it long enough with the garden hose that all that dirt would all fit back into the trench. Have I got a newsflash for that person. Two years of soaking didn't do it.

Prediction Three: I will get my computer working correctly again. I now know that when the salesman tells you that certain options will just fit right in, he may not be telling the whole truth. I hate Windows. But I really do enjoy my computer. Fascinating machine.

Prediction Four: The CUFC is going to receive a gracious letter from the big boys at Transport Canada thanking us for all the valuable input which we have put into the Recreational Aviation Review Project. As some of you may know, many of the Recreational pilots in Alberta have joined together, along with some employees of Transport Canada, to form the Western Recreational Aviation Committee.

Membership in this Committee has cost many Alberta Sport Pilots, both time and expense, so that they could feel they had contributed some valuable input and information into any forthcoming Rule changes. Some of the WRAC concerns may have seemed trivial, but they did come from the user end of this sport.

Prediction Five: More members of the CUFC are going to submit articles of interest for the Skywriter. You guys are doing things out there, and I predict that you will want to let everybody else know what is happening in regards to your projects and Ultrlalight flying. We sometimes discuss these things at our meetings but, for the members who live out of town and can't attend, your articles would allow them to enjoy, with you, your many projects and experiences. I know, without a prediction, that I will again thank Bob many times, for his gracious efforts towards the Skywriter.

Prediction Six: The Magpies that live in my trees are going to make the decision to look for a safer place to live. They have to be starting to be concerned about all those little lead things which keep flying past them. If I don't try to wake them up in the morning, why are they so intent on trying to do it to me?

Prediction Seven: I predict that I will again be bitten by the bug of Rivet Installation. I know, and this isn't a prediction, that I am starting to get tired of stepping over, around, and under my plane parts. I guess this means that I am going to have to find the assembly manual for that puppy. Where did I leave that thing?

Prediction Eight: I predict that nobody in our Club, or in any other Ultralight Club, will be seriously injured or killed during '95. I feel that there may be the odd hard connection between some Ultralights and the ground, but perhaps this can be expected. With the high level of training we have in this country, pilot error crashes shouldn't be happening. I predict I won't be reading about anybody's death. Please help me realize that prediction.

Prediction Nine: I predict that Transport Canada is going to finish (hopefully), or almost finish, the drafting and final approval of a new set of Recreational Aviation Rules. These rules are going to basically accommodate most of the concerns which have been expressed by all the people who have input information to TC. I predict that nobody wants this process to drag on any longer. I predict that nobody should get their butt (continued on page 4)

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#### (Propwash - continued from page 3)

burned on this one. Sometimes you lave to give something to get something.

Prediction Ten: I predict that I will survive 1995. I've had a couple of close ones in 1994, which I don't care to repeat. I predict I will be more careful with myself (and this has nothing to do with Ultralights) and not let myself get damaged again. I predict that when someone suggests "Lets go river rafting", all they will see is my back getting smaller.

Safe Flying in '95.

# GET S.E.T. Workshop

The Alberta Aviation Council is holding its eighth annual GET S.E.T. (Safety, Education, Training) Workshop on February 17, 18 and 19 in Calgary at the Marlborough Inn.

This popular event originated with the idea of preparing pilots and aircraft owners for the spring flying season and this year seminars will cover numerous topics, including flight safety, aircraft maintenance, aviation medicine, survival training, night flying and navigation.

The GET S.E.T. Workshop has also grown into a forum through which the general aviation pilot and other members of the recreational aviation

community may be updated on current issues and express their own concerns.

As recreational aviation across Canada is currently undergoing a major review of regulatory and licensing standards, it is especially important that members of the aviation community attend this vears event.

Ken Farrar and Lindsay Cadenhead from Transport Canada will be providing a recreational aviation overview of issues currently under discussion for change. Industry specialists will also be hosting sessions to discuss the current status of and potential changes to their pertinent topic areas; Ron Innes - Aerobatics, Danielle Rehm - Aeroplanes, Mart Slater - Gliding and Soaring, Leigh Spicer - Ballooning, Wayne Winters -Ultralights, and Hans Roeben -Powered Parachutes.

As always, there will be a social element to the weekend. A reception with a western theme will be held on Friday evening. This will be an excellent opportunity to view interesting displays as well as talk to fellow aviation enthusiasts. On Saturday evening, at the banquet, the guest speaker will be Gordon Bartsch, a well known member of the aviation community.

So, whether you are a pilot, student, flying companion or an aviation enthusiast, there will be something of interest to you at this years GET S.E.T. Workshop.

For more information or for advance registration, for the weekend or just a one day pass, please contact the Alberta Aviation Council at 403-451-5289.

#### Dues

If you haven't paid your membership dues for 1995, better get a cheque off to Gord Tebbutt asap.

Next month there'll be no Skywriter for those not paid up!



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#### **Airworthiness Alert**

Issued by: Beaver Owners Association, 1882 Ford Road, Pitt Meadows, BC, V3Y 1W1, Fax: 604-465-0982

Aircraft affected: Spectrum Aircraft RX550 Beaver and Beaver RX Enterprises BRX550 Beaver (All)

#### **Background Information**

Several inspections of RX550 & BRX550 aircraft have revealed slippage of the main wing drag/antidrag cable stop sleeves at the wing compression struts. A fatal accident occurred as a result of a failed drag/anti-drag cable. The subject aircraft had 220 hours TT and was used for training. The accident occurred during a practice stall drill when the left wing separated from the airframe. Canadian Tansportation Safety Board (TSB) report number A90Q0116 indicates that the tool used by the ultralight kit manufacturer to crimp the stop sleeves did not conform to the specifications of the stop manufacturer. The spacing of the stops had been inconsistant as well.

The drag/anti-drag cables are not anchored at the compression struts as in a conventional wing. Only two cables are used, anchored at the wing oot and tip. The stops are factory installed at either side of the compression struts. When a drag or anti-drag load is applied, the cables slide in the grooves until the sides of the stops contact the compression struts. The stops subsequently pivot until their ends are flat against the end caps. The slack created by this

pivoting movement allows the wing to move in the drag plane. This movement of the wing will result in failure of the wing structure.

All factory drag/anti-drag cables are suspect of interior assembly. The design of the drag/anti-drag wing cable is not in compliance with standard aviation practices.

#### Corrective Action:

Visual inspection alone can not determine is the stop has been crimped correctly. Visual inspection may show signs of movement or "sawing" action of the end caps.

Replace the factory designed drag/anti-drag wing system with Beaver Owners Association (BOA) Kit BOA-ALERT-W-101 prior to further flight. This kit replaces the two cable system with eight independent drag/anti-drag cables. The new design is consistent with conventional aviation practices. All materials and precesses are certified in accordance with Federal Aviation Administration (FAA) EA-Advisory Circular 43.13-1A, Part 193.

Dispose of drag/anti-drag cables that have been supplied by Spectrum Aircraft and Beaver RX Enterprices Ltd. for the RX550 and BRX550 type aircraft.

For more information or alternative means of compliance, please contact in writing the Beaver Owners Association c/o Brad Allore, Aircraft Maintenance Engineer at the above address or fax number.

## Classified

**Floats** - Pubble Jumper Amphibious floats for Beaver RX550, Complete with all rigging and #3 Pod, \$2500.00. Tony Stehr (403) 541-5045.

Airlight Model "A" Parasol - Steel tube & rag, Rotax 503, Warp Drive, lots of instruments, 800 x 6 tires, strobe, CB & VHF hookups, folding Kolb wings, \$6,500. (Reduced). Jim Creasser 226-0180.

Beaver RX550 - 1986, Rotax 503, dual carbs, engine and gearbox just overhauled, ballistic chute, ASI, ALT, CHT, full enclosure, Blue & White, new tires, ground adjustable 2-blade GCS prop, 2 extra props, full set of engine tools, \$8100.00 OBO. Damien Belanger 1-823-3027.

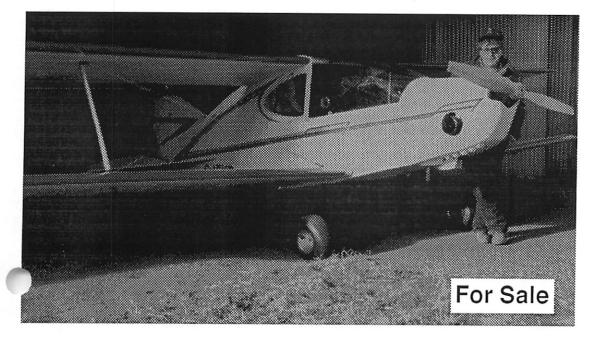
**1977 Honda 750 FourK** - Excellent condition, 4700 Mls, \$1200.00 firm. Doug Ward 282-0806.

**Lazair** - wind damaged, repairable, pioneer engines, \$500.00. Jim Creasser 226-0180.

**Hiperlite SNS-8** - 200 Hrs. TT, hydraulic brakes, ground adjustable prop, STOL, fun aircraft to fly, good condition, \$6500.00. Bob Campbell 934-3657.

Gauges - Dual CHT and Dual EGT gauges - \$125.00 for both, 3 1/8" Tachometer with hour meter - for CDI ignition. Ken Johnson 546-2586.

Classified ads are free to CUFC members. Call Bob Kirkby, 569-9541 to place your ad.



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# Rotax Service Information

#### Carburetor Icing On UL Engines

For Information only without commitment to advise modifications.

#### 1. General Information:

Carburetor icing with the dreaded consequences of engine failure and emergency landing, happens unexpected and without warning. The following explanations should help to shed some light on the matter and to point out preventive measures.

Distinguish between the two different icing situations;

- a) Actual ice formation in the float chamber.
- b) Icing on the venturi.
- 2. Formation of Ice in the Fuel System & in the Float Chamber:

Water in the fuel will collect in the lines (usually at its lowest point) and at the bottom of the float chamber, since water is heavier than fuel. At temperatures bellow zero this water will freeze, blocking most likely the main jet resulting in engine failure. This situation can occur in flight if emperatures start to dip below zero and enough water is present in the fuel.

As the contradicting demands on fuel, one for good transition behaviour on a cold engine and the one for low inclination for icing, can not get by with the saturation characteristic on its own. Nearly all registered fuels marketed by the larger oil companies contain anti-icing agents.

With proper maintenance and observation of the quoted points, you should not encounter this problem.

As a preventive measure, install a water trap before the fuel filter and be

sure that the fuel lines are routed with a continuous descent towards the water trap. (The water trap should be the lowest point in the fuel system.) Regular replacement of the fuel filter, draining the water trap, inspection and cleaning of the float chamber will greatly reduce the risk of ice blockage.

#### NOTES:

To ease engine start after an out-ofoperation period of 1 to 2 weeks, it is highly recommended that you drain off the old fuel and replenish with fresh fuel, as all the volatile ingredients of the fuel, essential for easy engine start, have long since evaporated. This is especially prevalent if mixed fuel is used since the two stroke oil hastens the degradation of the fuel.

#### 3. Icing on the Venturi:

Carburetor icing in the vicinity of the venturi and at the fuel egress in the carburetor, due to flow expansion and heat loss by the evaporation process of the fuel.

This problem may occur at temperatures as high as 15C (60F) (mostly between 2C (36F) and 8C (46F)) and becomes especially acute at high humidity levels. This situation can be extremely treacherous for the pilot and completely unexpected at this temperature.

#### 3.1 Explanatory Details:

At the atomization of the fuel in the carburetor and the subsequent vaporization, heat is withdrawn from the surrounding components of the venturi. The increased speed of the airflow combined with the pressure drop in the venturi intensify the heat loss, causing in extreme cases, a temperature drop of as much as 20C (80F).

This leads to the precipitation of the water in the humid air aspirated. At temperatures low enough with

humidity still sufficiently high, formation of ice might take place on the inside of the carburetor at certain operating conditions.

#### Distinguish Between:

- a) Formation of ice bordering the smallest section of the venturi at low load, possibly leading to engine stoppage at idling due to air starvation.
- b) Icing of the mixing tube, possibly leading to loss of performance at continuous full load, due to fuel starvation.

#### Prevention:

An alcohol composition in low concentration can be used to lower the freezing point of the humidity in the air charge. Addition of fuel additives to reduce adhesion of the ice on the surfaces concerned.

Never the less, refrain from further additives as todays fuels, especially unleaded fuels which contain up to 10% alcohol to increase octane rating (besides some aromatics are substituted for lead), which again increase the cooling effect because of the 3+ times greater evaporation heat of alcohol.

- 3.2 For A Better Perspective see the sidebar.
- 4. Counter Measures:
- 4.1 For prevention of water in the fuel pay attention to the following:
- 1. Use only quality fuel of a registered brand.
- 2. Store fuel for short periods only.
- 3. Install a water trap in the system.
- 4. Use a fuel tank furnished with a water drain plug at the lowest point.
- 5. Frequently check and drain float chamber of carburetor.
- 4.2 To avoid formation of ice, the following needs attention and leads to success:
- 1. Aspiration of preheated air. On Fan cooled engines duct warm cooling air to the intake filter. On liquid cooled engines provide a jacket around the muffler for preheating of intake air.
- 2. External preheating of the carburetor with warm air.

NOTE: PREHEATING OF CARBURETOR WITH PREHEATED FUEL IS NOT PERMITTED.

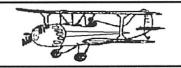
The foregoing was submitted by Bernie Kespe

Fuel	Evaporation Heat		Theoretical Temperature Drop of Mixture	
	kcal/kg	Btu/lb	Degree C	Degree F
Petrol	80	144	20	68
Benzene	95	171	30	86
Ethane	220	396	83	181
Methane	284	511	140	284

Evaporation Heat & Temperature Drop of Various Fuels.

# One Pilot's Opinion

by Bob Kirkby



A few weeks ago I woke up at 4:30 in the morning, for no apparent reason, and couldn't go back to sleep. Naturally, my mind wandered to flying, and without realizing it I was re-capping some of my most memorable flying experiences.

Being an amateur writer, I begin most of my compositions lying in bed thinking in prose. But, for some strange reason, this time I began thinking poetically. More precisely, in poetic prose.

By the time the alarm sounded I had just about polished off my poem, so I sat down at the kitchen table to get it on paper before I it was lost forever (this usually happens once I've had a shower and become fully awake). Once it was down on paper and corrected and adjusted, I realized it needed a title. So I read it through a couple of times and it struck me that this would make a great epitaph. Hence the title, "A Pilot's Epitaph".

Being a part-time believer in omens, since that day I have been looking both ways, twice, before stepping off the curb. It gives one a sense of forbodding having written one's own epitaph. Here it is. I hope you enjoy it.

#### A Pilot's Epitaph

by Bob Kirkby

Don't cry for me for I have flown Above the earth, above the clouds Above the crowds in space so free. My open biplane pleasure gave Beyond duty's call, beyond compare.

One with the sun,
We've risen together, earth to sky.
Mile long shadows I've watched appear,
Stretch one farm house to the next
Extending morning's greeting.

My plane has flown itself
Whilst I absorbed the twilight beauty
On air so clear, it isn't there.

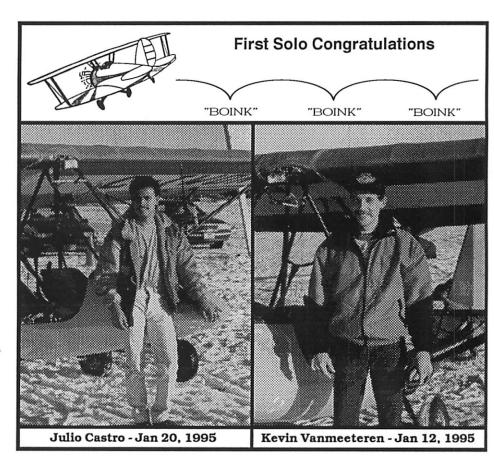
O'r fields of yellow we have soared Two thousand feet, the hawk and I. I've kissed the clouds, and in the sunlight Scribe the ground with shadow pen. Skimmed the surface, hopped the fence, To wif Canola's pungent fragrance.

The mountain gorge I've ventured through, Been humbled next to granite peaks Unequaled in magnificence, Swept the valleys' morning mist Then climbed to hop a snow-capped ridge.

And, yes, I've flown the scud as well, Felt the ceiling crashing down While dodging obstacles up close And searching for a nest to rest. A miracle I've also seen, when suddenly The sky was clear for two miles square, An airport in the center lay. God must have found it, I could not.

Most beautiful of all from high Is sunset's crimson glow, Bursting forth from Rockies' spires, Fading to every hew of blue. To be replayed at will, y flying higher and higher.

Don't cry for me, but cry for those Who have not flown.



In time, and as one comes to benefit from experience, one learns that things will turn out neither as well as one hoped nor as badly as one feared.

- Jerome S. Bruner

# **One Pilot's Opinion**

by Bob Kirkby

#### **Bungee Aging**

Have you ever wondered what the coloured strips on bungee cord are for? I thought it had something to do with size, but I recently discovered differently.

This colour coding is composed of coloured threads interwoven in the cotton sheath which binds the strands of rubber cord together. The coding is defined by mil-spec MIL-C-5651A to indicate the approximate date of manufacturer. Since bungees deteriorate with time, this lets us determine the age of the bungee, which can be used as a guide to periodic replacement.

Here's how it works. There are two spiral threads used for the year and one for the quarter of manufacture. There are five colours assigned to years and, obviously, four for quarters. Thus the year colour code repeats every five years. This is a pretty strong suggestion that your bungees should be replaced before five years elapses!

Year	Colour	Quarter	Colour
Year 1980 1981 1982 1983 1984 1985 1986 1987	Black Green Red Blue Yellow Black Green Red	Quarter 1st 2nd 3rd 4th	Colour Red Blue Green Yellow
1988	Blue		
1989	Yellow		
1990	Black		
1991	Green		
1992	Red		
1993	Blue		
el	c		

Table 1. Shock cord colour codes.

Table 1 shows the colour coding cycle. Figure 1 shows a sample bungee with two blue stripes followed by one yellow stripe. From this we can determine that the bungee cord was manufactured in the 4th quarter of either 1988, 1983 or 1978. You would have to rely on other information to determine which of these years was correct, such as maintenance logs, year the aircraft was built or simply memory. It's pretty obvious that bungee cord manufacturers do not expect their product to last more than five years.

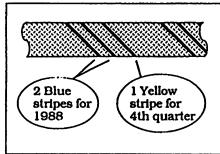
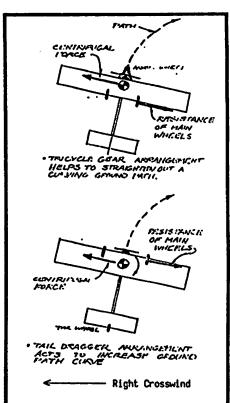


Figure 1. Sample bungee cord coding.

Bungee cord should be replaced when it shows any sign of deterioration, especially if it is over five years old. Deterioration is indicated by "necking" or narrowing of the cord and by breaks or worn spots in the sheath. The necking of the cord is caused by individual strands inside the cord breaking.

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This diagram illustrates the forces on both a tricycle geared airplane and a tail dragger taking off in a right crosswind.

The wind against the tail causes the aircraft to tend toward a curved path into the wind. This curved path in turn causes a centrifugal force acting in the opposite direction at the C of G. In the trike the C of G is ahead of the main gear so this force tends to correct the tendency to turn into the wind. In a taildragger the C of G is aft of the main gear so the centrifugal force adds to the tendency to turn into the wind.

This illustrates why a taildragger is more prone to groundloop in a crosswind.

· The Editor

#### Finding the "time in your tanks"

- log accurate flight times, power settings and fuel used on each trip
- count flight time as startup to shutdown
- compute fuel consumption in gal/hr after a few flights under similar operating conditions
- determine usable fuel in gals from pilot's operating handbook
- your safe flight time limit is:

• in flight, compute fuel used:

$$\frac{gal/hr \times min \ flown}{60} = --- gal \ used$$

 if fuel gauges do not agree with computed gals used, suspect inaccurate readings or a loose fuel cap

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