



# Skywriter



Monthly Newsletter of the Calgary Ultralight Flying Club

August 1990

## View From Above

by Paul Hemingson



The July 4/90 CUFC meeting was held at my place near Priddis. About a dozen members showed, and three of them flew in: Ron Sondergaard in his Crusader, Gord Keegan in his Beaver, and Bob Kirkby in his Renegade. The wind, wires and weeds created a challenging situation that called for lots of skill in getting down. Getting over the wires, above the cows, crosswind, and softfield required lots of attention on final and rollout. Counting the cows, about a hundred pair of eyes looked on. Full marks to all...its not easy under ideal conditions to land gracefully with an audience looking on, and conditions were far from ideal. Their is no disgrace in making several go-arounds/looksees before committing yourself, or deciding that its not for you. My strip can be a tough one to "get into" or "out of" and all the guys showed good judgement in assessing the situation. Anyone is welcome here anytime, just have a good look, or phone ahead for the local scene.

The grass was long, but the meeting was short.... a nice break from our regular forum. The RAF facilities are second to none and I have been considering that we might show our appreciation for the volunteer help that make it possible. Give me your ideas and lets do something for these fine folks.

At our open-air meeting, we covered off a few agenda items. Gord Keegan and Ralph Winters recanted the June 16 rip to Brooks/Medicine Hat. Gord nominated himself for the Booby Award, which Ralph would have won, had it not been for his wife advising him to overnight it in Brooks. The Red

Deer Airshow (Aug 4-5) status was reviewed by Jim Creasser. Jim handed out applications for a limited few for the static display.. which comes complete with lots of perks....first come first served...you had to be here to get in on the deal. We talked about some plans for attending, but everything is of course weather dependant....we have one meeting (Aug 1/90) to flange up the loose ends. If you plan on attending, ensure your ready to go when the group is ready....an early Saturday morning flight is the tentative plan....phone around a day or two before to find out whats shakin'. Also, for those who committed to participating, some thought needs to be given to the fly-by....for those who have never flown in loose formation it is not easy to hold your position in some semblance of order, when machines of different speeds are involved....if we're going to be high profile we should do our thing with some degree of precision. Think about it. I recommend that the participants get together to discuss the concept, and do some contingent planning. The

last agenda item was on Skywriter articles and presentations. We talked about the idea of some Ground School Refresher briefings for future meetings. Ken Whittington reviewed a nifty Flight Planner computer program and Loran...which will be more effective for Western Canada once a new station is finished in Montana. With this technology you will be able to find out how lost you are without buzzing grain elevators, or trying to read Hiway signage.

Insurance is now mandatory. If you don't got it, you ain't legal....and if you got it, fly safe, so our premiums don't increase. By the way, the penalty for not having insurance is \$5000!....or a suitable time in jail. By my calculations, with about 3000 ultralight pilots paying \$50 each the total premium is only \$150,000....so lets not use it up and face increased premiums.

This months newsletter contains an excerpt on the proposed new Ultralight Aeroplane Policy. Please review the draft proposal and we will discuss the implications and any concerns at the September meeting. I would like to give UPAC some positive feedback to support their efforts in getting these reg's implemented. More on this topic in future Newsletters.



A Merlin, two Hiperlights and a Beaver at Brooks airport.

# Gyroplanes

by Jim Creasser



I have always had an interest in Gyros (Gyroplanes is the proper term, Gyrocopter is Benson's registered name) ever since I watched Ken Whittington fly his Benson back in the sixties. Although the Bensons weren't a well designed ship in my opinion (and also in a lot of widows opinions) the basic concept was super, but I think Igor Benson came up quite short when he didn't try to improve his original design.

Benson sold over twelve thousand kits and plans. Many would be gyro pilots were killed as there was no training available and gyros are different, just as U/L's are different than "real airplanes". Benson's claim of the safest homebuilt design was true as no structural failures were recorded, but this term was misunderstood by most.

About 1985, a new machine appeared on the market. The Air Command line of Gyroplanes looked good, flew well and were reasonably priced and so became an instant hit. Dennis Fetters, the designer and President of Air Command, began showing up at all the right places, Oshkosk, Sun-N-Fun, Airshows etc. and demonstrated to the crowds how well his machine performed. And perform it does, very spectacularly. His top of the line machine, the 532 Elite (now 582 Elite) takes off in 60 feet, has a speed range of 7-100 mph and with a 10-15 mph wind will fly backwards. It can be transformed to either a side by side or tandem two place machine, which is necessary for training, which in turn,

is necessary for a long life for gyro pilots. The kit prices vary from \$6995 U.S. for the basic 447 model to \$8495 for the 582 Elite plus \$995 for the 2 seat conversion kit. You can't buy a two seat machine. First you must put 50 hours on a single seat then the factory will ship the conversion kit, not a bad idea.

So far it looks good, we have a machine that will fit on a snowmobile trailer and into a single car garage, carry two people, take off in under 100', fly at running speed or 100 mph, operate safely in winds to 40 mph, all for about 12 or so thousand hard earned Canuk Bucks. Sounds too good to be true you say. Well the regulations are the bad news, first the good part of the bad news. Under chapter 549 of the Airworthiness Standards for Amateur Built Aircraft it states in 549.5 "all amateur built aircraft must have the major portion of the aircraft (more than 50%) fabricated from raw material and assembled by an individual or group on a non-production, non-commercial basis for educational or recreational purposes". This appears to be solved as the F.A.A. has recognized the air command machines as approved under their 51% rule and Transport Canada recognizes the F.A.A.

The bad news is now that you can buy, import, and build your machine, it is very difficult to fly it. A couple of other regs on airworthiness are 549-203: "maximum permissible take off weight shall not be greater than 1125 lbs".  
(Continued on page 3)



## EXECUTIVE

### President

Paul Hemingson 931-2363

### Vice-President

Gord Keegan 238-0177

### Treasurer

Gord Tebbutt 288-0545

### Secretary

Gord Sorenson 293-7990

### Director

Jim Creasser 226-0180

## SKYWRITER STAFF

### Editor

Bob Kirkby  
226-0720

### Columnists

Paul Hemingson  
Gord Keegan  
Jim Creasser

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:

### Skywriter

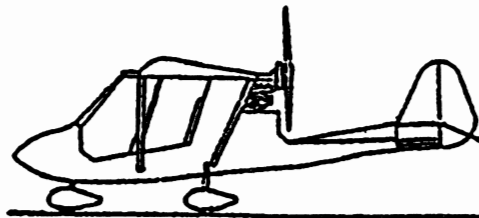
c/o Bob Kirkby  
Box 4, Site 9, RR 6  
Calgary, Alberta  
T2M 4L5

Meetings of the Calgary Ultralight Flying Club are held the first Wednesday of every month at the R.C.A.F. Association, 110 - 7220 Fisher Street S.E., Calgary at 7:30 PM.



**SKYMASTER AVIATION SERVICES**

**YOUR  
CHALLENGER  
DEALER**



**Flight Training, Sales and Service  
Parts for Challenger - Eipper - Beaver  
Instruments - Propellers - Ultra-Com Headsets - Intercoms**

**Located at the Olds-Didsbury Airport 335-3306**

(Gyroplanes continued from page 2)  
 Regulation 549.107 also applies - re maximum empty weight. The formula is:

$$ME_{MAX} = MTOM_{MAX} - (175 + 175 \sqrt{A} + .5p)$$

where:

$MTOM_{MAX}$  = MAX permissible take-off weight, selected by the applicant

a = number of passenger seats (one or zero)

p = rated HP

So what does all this mean? Lets do an example using the 582 Elite 2 place.

Empty weight = 310 lbs  
 Max usefull load including 8 gallons fuel = 440 lbs  
 HP = 65

If we apply the above formula we find the maximum empty weight allowed is 295 lbs and the craft actually weighs 310 lbs. So using the factory numbers this machine wouldn't qualify. But the regs say max permissible take off weight declared by the applicant, so I declare.....! Still no problem, but now comes the hard part.

Licensing to fly a Gyroplane the pilot will require a gyroplane licence which is very similar to a Private Pilots licence. 45 hrs. ground school, 12 hrs. dual flight time including 2 hrs. cross-country with landings, and 40 hrs. flight time. Even using experience from other categories such as Private Pilot, a minimum of 20 hrs. ground school and not less than 30 hrs. flight time in a gyro!

Now the hard part... there are only two gyro instructors/testers in Canada, one in Alberta.

Looks like I will wait until the regs change, if ever. We expected new U/L regs Jan 1/91 and now another delay of up to two years, so who knows when the gyro regs will be amended? When they are you might see me in a gyroplane.



### SUMMARY OF CURRENT VERSUS PROPOSED CANADIAN ULTRALIGHT DEFINITION

CURRENT REG'S	PROPOSED REG'S
*****	
<b>SINGLE PLACE</b>	<b>SINGLE PLACE:</b>
Max. Empty Wt: 364 lbs	Max. T-O Mass: 628lbs
Wing Area: >107 sq.ft.	Max. Speed 115mph
W.A.=LW-15 must be >/=10 10	Max Stall @Gross 45mph
*****	
<b>TWO PLACE</b>	<b>TWO PLACE</b>
Max Empty Wt 430 lbs	Max T-O Mass 1058 lbs.
Wing Loading </=5lb/sq.ft.	Max Speed 115mph
Wing Area: >107 sq.ft.	Max Stall@GW: 45 mph
No Passenger Carrying	New Classifications Old UL= 5yr/update New UL-Proof Comply Passengers??
*****	

Note. This is only a summary of the current and proposed regulations governing the licensing of ultralights. See TC for detailed info. The proposed regulations are currently being addressed and some changes are likely.

## Airlight Aviation

Canadian Distributor for the 1990 Sorrel Hiperlight

**R.P.M. Propellers** - New ground adjustable, composite, 2 and 3 blade props to fit Rotax engines. Hubs also available to fit VW, Continental and Lycoming engines.

**Tygon Fuel Hose** - stays flexible for years. \$1.50 / foot

**Rotax Impulse Line** - fuel pump to engine. \$.60 / foot

**Optimol Smokeless 2-stroke oil**

**Rotax engines - Parts and Service**

Contact Jim Creasser - 226-0180

# Flight Into Darkness

A Short Story by Bob Kirkby

It was a warm, pleasant evening in August. The kind of evening that makes me glad I live in Calgary. A cloudless sky, light breeze, the dry crispness of winter combined with the warmth of summer. The sun still 20 degrees above the Rockies, indicating another three hours of daylight - three hours of flying time left in the day.

I decided to take my airplane out for a flight. This was a perfect evening for flying my old rag-and-tube style Ultralight. It had a particular aversion to being flown in daytime thermals, which was made clear to me on numerous occasions by its vigorous attempts to liberate me from the seat, like a bucking bronc. So this evening I expected to be treated to a smooth and relaxing ride.

I rolled my airplane out of its hangar, filled the gas tank and did my usual pre-flight. Then I paused to consider where to fly. With a full tank of gas, I could fly for one and a half hours with about a half-hour left as a safety margin. A glance at the windsock told me the light breeze that was blowing, was coming from the south. When going for a recreational flight in such a slow moving aircraft as mine, I always like to fly into the wind so that my return flight will be with the wind, and hopefully a little shorter than my outbound flight. And so I decided to head south to a local grass-strip airport about 20 miles away.

A few minutes later I was airborne at 4000 feet, that's about 500 feet AGL in my area, and settled into a leisurely cruise speed of 45 mph. The air was warmer up here... a little too warm, as I had put on a sweater under my flight suit in anticipation of a cooler return flight. The ground was moving under me rather slowly. I estimated my headwind to be about 10 mph, giving me a ground speed of about 35 mph. The trip out should take about 40 minutes and, if the southerly winds held, the trip back about 30 minutes. Since I now had about two hours of daylight left, I would have time for a half-hour visit at my destination.

Time sure flies when you're having fun. Before I knew it I was setting up for my landing. I spent the next half-hour hangar flying with the local boys. A great way to round out a perfect evening.

Then, keeping to my schedule, I prepared for my trip home. The windsock was beginning to look like a limp rag, although it was still pointing north and indicating about 5 mph. I took off to the south and followed the imaginary dotted line of the circuit

until I was heading north. Climbing back to my cruising altitude, I again settled in for a relaxing flight. The sun was beginning to cast long shadows and I estimated a little less than an hour of daylight left.

About 5 miles out I encountered a bit of turbulence. It wasn't much, but it was very noticeable compared to the "smooth as glass" flight I had been having. Then, without even thinking about it, I became aware of a decreasing ground speed. I had been "scooting right along" but now it seemed as if there was a huge elastic band attached to my tail with the other end fixed to some immovable object in the sky behind me. I could almost see my ground speed slowing as I watched the patchwork quilt going by below.

As suddenly as if a giant fan had been switched on, the wind had shifted - 180 degrees! Worse yet, it seemed to be increasing with every passing minute. Then, again without warning, that little bit of turbulence increased tenfold in ferocity and my aeroplane and I began bobbing all over the sky. For five minutes I struggled to maintain control. Then, as suddenly as it began, the air settled back down to a "little" turbulence again. It was still bumpy, but it felt great after what I had just been through.

I took stock of the situation. I checked my watch - by now I had been flying for 30 minutes. I checked the ground - I was about 1/3 of the way home. I was passing a lake on my left. A landmark which usually takes me about 5 minutes to pass. I looked around and checked the sight gauge on my tank. About 1/3 of a tank left or 40 minutes. I began to get a little worried. The headwind was so strong that after 15 minutes I was only half way around the lake that I can usually pass in 5 minutes. It didn't take a calculator to determine that I was not going to make it home at this rate. It was a toss-up whether I would run out of daylight or fuel first!

After another 15 minutes, I was approaching the other side of the lake and preparing myself for a precautionary landing in a suitable field, when to my delight the headwind seemed to let up and my ground speed increased. I watched the ground carefully for a few minutes and now estimated my ground speed at about 35 mph. That felt much better. I should have no trouble making it the rest of the way now, so I pressed on.

I looked around to check my fuel again and found myself squinting at the sight gauge. No matter how hard I squinted, I could not see through the tube. It was now too dark to see the fuel in the yellowing plastic tube I used for a sight gauge. Damn, why hadn't I changed it when I changed my fuel line last month? Now I didn't know where my fuel level was. I would have to

estimate it based on flying time.

I resigned myself to some mental arithmetic and looked at my watch. Oh, oh! I couldn't read my watch either. I checked my instruments - I couldn't read them either. I knew my airplane well enough to fly it without instruments, so I concentrated on my route. My groundspeed seemed to be holding so I should make it, based on my last estimate. There was still enough light to tell a good field from one littered with buildings, so I mentally hopped from one potential landing sight to another as I felt my way home.

I was now close enough to my home base that I knew every obstacle and landmark. The twinkling lights from the houses below were enough to navigate by. I had one more major concern before I turned into my home strip. I had to cross over high-tension power lines which I couldn't see! From the house lights below, I knew exactly where the power lines should be, but I couldn't see them and I didn't know how high I was. The lines were now directly between me and my home strip and I was about a quarter of a mile from them, approaching at a 45 degree angle. I had to have the power lines in sight before crossing them, so I turned to fly along the lines, using extra fuel, until I caught sight of a tower silhouetted against the western horizon. I turned and headed for the tower, climbing about 100 feet higher to be sure I could glide over it if my engine chose that moment to die of starvation.

With the power lines finally under me, I throttled back and began my descent. There were enough houses with lights on around me to triangulate (polyangulate in this case) the exact location of the runway. The ground now looked completely black. I knew exactly where the runway was, but how would I know when I was there without hitting it? Fortunately my runway is just cut out of a large field with nothing more than tall grass on either side. I was landing into the west, so I could tell when I was getting close to the ground by the angle of the still visible horizon. When I knew I was within 20 feet I rounded out to what I guessed was a very shallow approach and started looking for tall grass. I seemed too be drifting forever. Finally I caught sight of the tall grass and knew I was only 2 feet off the runway. I cut the power and waited the most welcome touchdown I have ever made.

With my airplane safely back in the hangar, I grabbed a flash light and looked at the fuel sight gauge... nothing. I unscrewed the cap and looked inside. There was no more than a half litre of fuel in the bottom of the tank. Two or three minutes of flying time left! I vowed to leave more margin next time.



# Transport Canada-Ultralight Aeroplane Policy

Prepared by TCAG Ultralight Aeroplane Committee

## 1.0 TRANSPORT CANADA OBJECTIVES

Policy is the course or general plan of action decided upon. Accordingly, the purpose of policy is to:

- direct individuals within the organization to work towards a common purpose;
- guide, expedite and simplify decision making;
- enable better planning, both within the organization and by affected individuals and groups outside the organization;
- promote fairness in the treatment of individuals and groups affected by actions taken by the organization; and
- clarify the goals and objectives of the organization.

Ideally, policy should reflect the most rational way to deal effectively with a given policy problem. A good policy is one which is effective in dealing with the original problem and one which is likely to be supported by a majority of persons affected by it, either because they agree with the policy, or the process by which it was made.

## 1.2 Policy Process

### 1.2.1 Policy Stimulus

The UL aeroplane community of manufacturers, owners and pilots has petitioned Transport Canada to provide relief from regulations which they find incompatible with the new design standards developed by industry and accepted by Transport Canada. Specifically, existing limitations on maximum weight and the prohibition against carrying passengers are considered unrealistic. Transport Canada has accepted this petition and resolved to analyse the situation and take any necessary corrective action.

### 1.2.2 Policy Objectives

The objectives of this policy are to:

- Enhance the airworthiness of UL aeroplanes and develop a personnel licensing system that will enable the UL aeroplane community to grow and develop to its fullest potential;
- Recognize the recreational nature in which UL aeroplanes are operated and consider the improved airworthiness and pilot licensing standards and self-regulatory controls as factors that may limit regulations only to those which serve useful safety purposes; and
- Encourage within the UL aeroplane community, a sense of discipline and self-determination with emphasis placed on efficient and professionally applied self-regulating activities.

These objectives coincide with the Department's primary focus on safety and the Federal Government's goals of public sector restraint and private sector economic renewal.

### 1.2.3 Affected Population

Members of the following associations are likely to be affected directly by the policy: Light Aircraft Manufacturers Association of Canada (LAMAC); Ultralight Association of Canada (UPAC); Canadian Aero Sport Technical Committee (CASTC); Recreational Aircraft Association of Canada (RAAC); and the Experimental Aircraft Association Canadian Council (EAACC).

Other airspace users may be indirectly affected by the proposed policy. This would include the Canadian Owners and Pilots Association (COPA), the Canadian Air Line Pilots Association (CALPA), the Canadian Business Aircraft Association (CBA), and the Air Transport Association of Canada (ATAC).

### 1.2.4 Research

This paper, along with supporting papers, represents Transport Canada's policy research on the topic in question.

### 1.2.5 Basic Policy Alternatives

Transport Canada has three major options in this area:

#### A. Enforce the Status Quo

This option is based on the argument that any upward change in regulations would blur the distinctions between the UL aeroplane community, current general aviation, and the non-transport primary category. Those with "first-generation" UL aeroplanes would likely not object, but that sector of the community interested in progress and development would find this option to be extremely restrictive. The advantages of this option are that it protects the status quo and places only a small burden on Transport Canada's limited resources. The disadvantages of this option are that it inhibits progress in UL aeroplane design, construction, performance, UL pilot training and any reasonable hope for a Canadian UL aeroplane manufacturing industry. This option would also require Transport Canada to expend resources to actively enforce existing legislation.

#### B. Adopt a Laissez Faire Approach

This option is based on the assumption that the problem may be small enough to ignore, at least in the short term. Accidents involving UL aeroplanes are not a national issue, nor, given a general decline in the number of accidents since 1984, do they represent a major threat to the aviation industry as a whole. In this option is the notion, albeit not well defined, that insurance, legal and other market forces would, in the absence of Transport Canada regulation, provide a degree of self-regulation. The advantage of this option is that it keeps government out of a sector whose whole essence is freedom from the heavy regulation that is applied to the rest of the aviation industry. Moreover, this option would impose the absolute least administrative burden on Transport Canada's limited resources. The disadvantages include the erosion of compliance with and respect for existing legislation, the probability of safety, economic and regulatory turmoil within the UL community, and the emergence of a situation even less desirable than currently exists.

#### C. Revise Existing Regulations and Orders

This option assumes that the state-of-the-art of UL aeroplanes has surpassed the limitations of existing regulations and orders, necessitating a review of the situation with a view to revising existing legislation. The advantage of this option is that it allows the progress made in UL aeroplane design, construction and performance, to be reflected in higher standards of airworthiness and pilot training, and is more likely to result in safe and lawful operation of the UL aeroplane community. The disadvantage of this option is that it is work intensive on behalf of the Department. Considerable time and effort must be expended to effect review and consultation, and policy must be developed and regulations written or amended.

### 1.2.6 Policy Option

All options considered, Option 3 is most in keeping with the Department's objectives and with the needs of the UL community. Option 3 is therefore recommended and further developed in section 2.0 of this paper.

### 1.2.7 Policy Consultation, Finalization and Approval

This paper will be circulated to all groups touched by the proposed policy, be they directly or indirectly affected. The policy will be finalized at the end of the consultation period and the finalized policy will be approved by the Director General, Aviation Regulation.

### 1.2.8 Implementation

While implementation of the policy will depend on legislative changes which could take up to December 1991 to promulgate, interim implementation of some parts of the policy would be possible by exemption to the weight limitations, allowing the continued manufacture, sale and restricted operation of the new generation of UL aeroplanes capable of meeting the design standards contained in TP 10141, Design Standards For Ultra-Light Aeroplanes.

### 1.2.9 Review

The Chief of each Transport Canada Division having an interest in this Policy is responsible for reviewing the Policy through the Quality Assurance Review mechanism.

## 2.0 ULTRA-LIGHT AEROPLANE POLICY

### 2.1 General

Ultra-light (UL) aeroplanes in Canada have evolved from the weight-shift hang gliders in the mid-1970's to motorized single and two place open cockpit aeroplanes in the early 1980's, to two place, fully enclosed aeroplanes of the late 1980's and today. Throughout this evolution, UL aeroplane manufacturers have continuously probed and occasionally broken regulations with respect to weight limitations. The combination of low levels of experience with new technology, inconsistent standards, and a lack of regulations, led to a high accident rate in the early 1980's, as shown in Reference A.

These accidents reached a peak of 61 in 1984 (1439 registered aeroplanes), and declined to 36 in 1989 (3119 registered aeroplanes). Of the 362 UL aeroplane accidents recorded on the Aircraft Incident Data System, 359 have been analysed. In these, a structural or mechanical failure was cited in 34% of the occurrences; the remaining 66% involved human or environmental factors.

Although various standards have been developed either by manufacturers associations (PUMA, NASAD, LAMA) or by the Airworthiness Authorities (UK BCAR Section B) no Canadian standards of airworthiness exist. In 1984, Transport Canada Senior Management directed the Airworthiness Branch to prepare airworthiness standards for UL aeroplanes, the purpose of which was to improve the safety of the UL aeroplanes in Canada. Since then, Transport Canada has urged the Canadian UL community to form a unified voice and to propose self-regulated standards for airworthiness and control. Also in 1984, Transport Canada promulgated the Hang Glider and Ultra-Light Aeroplane Order (Air Navigation Orders, Series V, No. 24). This order provided for:

- the prohibition of passenger carrying except for dual instruction;
- VFR day only operation;
- conditional prohibition of operating near airports in controlled airspace;
- the requirement for UL aeroplanes to have safety harnesses; and
- the requirement for occupants to wear safety helmets.

In 1986, Transport Canada promulgated Air Regulations and Air Navigation Orders respecting the operation of UL aeroplanes. Briefly stated, these regulations defined UL aeroplanes, including single and two seat models, and stated the regulatory provisions relating to registration and airworthiness.

### 2.2 Historical Background

In 1984, the Airworthiness Branch was requested by Senior Management to prepare airworthiness standards for ultra-light aeroplanes, to improve their safety.

Since 1984, Transport Canada has urged the ultra-light aviation community to form a unified voice and propose self-regulated standards for airworthiness and control.

In July 1986, the Airworthiness Branch issued a conceptual approach to "Aircraft Recreational Vehicles" (ARV), which included ultra-light aeroplanes.

At two public meetings on March 10th, 1987, in Ottawa, and March 27th, 1987, in Edmonton, Transport Canada reiterated the need for the ultra-light industry to rally as a unified voice, and to develop standards of airworthiness and associated procedural controls.

On May 4th, 1987, the Ultra-Light Manufacturers Association of Canada (UMAC) was founded in Toronto.

On June 19th, 1987, UMAC submitted to Transport Canada a new definition of "ultra-light" aeroplane allowing for increased weight. On June 24th, 1987, a representation from UMAC had a "brainstorming" session with the Chief of Airworthiness Standards. Further to that session, the first issue of the "Ultra-Light Aeroplanes Policy" was developed.

On February 19th, 1988, S. Sinclair, President of UPAC, and M. Khouzam of Transport Canada met in Ottawa to discuss and clarify the intent of the policy. Revision 2, reflected the discussion and attempted to eliminate any misinterpretation of the proposed policy.

On May 2nd, 1988, in Toronto, Transport Canada met representatives from UMAC, UPAC, CASTC, EAACC, EAAC and COPA to present and discuss this Policy. Following industry request, Transport Canada agreed to develop an amateur-built ultra-light aeroplane subcategory within the Amateur-Built Aircraft category.

In May 1989, the Light Aircraft Manufacturers Association of Canada (LAMAC) was founded in Toronto (replacing UMAC). UPAC requested some changes to the ultra-light aeroplane definition: stall speed criteria instead of wing-load criteria and maximum level speed.

On September 7th, 1989, Transport Canada, LAMAC, UPAC, CASTC, EAACC, the Recreational Aircraft Association of Canada (RAAC - formerly EAAC) and COPA met in Toronto and signed a memorandum of understanding on the acceptance of this Policy and its implementation in two years.

### 2.3 Current Situation

Some of the current generation of UL aeroplanes have exceeded the existing weight limitations as defined in the Air Regulations. Because they comply with the UL design standards of TP 10141 they represent improvement over previous designs, hence the progressive elements of the Canadian UL aeroplane community feel constrained by existing legislation.

To coordinate an effective response to the needs of the UL aeroplane industry, the Director General, Aviation Regulation, formed a committee made up of specialists from each function within Transport Canada. This committee was tasked with reviewing the situation and making recommendations that would ensure the continued safe growth of the Canadian UL aeroplane community (industry and user associations).

### 2.4 Purpose

Transport Canada intends to improve the airworthiness of ultra-light aeroplanes by promoting the development of self-regulated airworthiness controls by the ultra-light community. To this end, Transport Canada is considering amending the definition of "Ultra-Light Aeroplanes" to allow for:

- Increased weights to enhance structural integrity; and
- the use of two-place UL aeroplanes for recreational purposes, in addition to training.

Transport Canada is also reviewing personnel licensing standards to allow the operation of these aeroplanes and to recognize the increased privileges that will allow for:

- passenger carriage; and
- flight operations in controlled airspace.

### 2.5 Definitions

The following definitions would apply under the proposed policy:

"Ultra-Light Aeroplane" means a propeller-driven aeroplane designed to carry a maximum of two persons, including the pilot, having:

- a maximum take-off mass (weight),  $W_m$ , of:  
 $285.0 \text{ kg (628.3 lb)}$  for a single place, or  
 $480.0 \text{ kg (1058.2 lb)}$  for a two place; and
- aeroplanes derived from landplanes will have an additional mass (weight) allowance of:  
 $35 \text{ kg (77.2 lb)}$  for a single place, or  
 $50 \text{ kg (110.2 lb)}$  for a two place.
- maximum stall speed in the landing configuration,  $V_{SO}$ , at manufacturer recommended maximum take-off mass (weight) not exceeding  $72 \text{ Km/h (<5 mph)}$  Indicated Air Speed.
- a minimum useful load,  $W_u$ , computed as follows:
  - For a single place:  
 $W_u = 80 + 0.3P$ , in kg; P is the rated engine(s) power in Kw;  
 $(W_u = 175 + 0.5P$ , in lb; P is the rated engine(s) power in BHP)
  - For a two place:  
 $W_u = 160 + 0.3P$ , in kg; P is the rated engine(s) power in Kw;  
 $(W_u = 350 + 0.5P$ , in lb; P is the rated engine(s) power in BHP).
- the maximum empty weight,  $W_e$ , includes all operating equipment that is actually installed in the aircraft. It includes the weight of the airframe, powerplant, required equipment, optional and specific equipment, fixed ballast, fuel, engine coolant, hydraulic fluid, and the residual fuel and oil.  
 $Hence: W_e = W_m - W_u$

"Industry Representative" means an individual so designated by a manufacturer or by a selection committee made up from representatives of LAMAC, UPAC, CASTC, RAAC and EAACC, for the purpose of:

- certifying the "Statement of Conformity";
- approving UL aeroplane modifications; and
- developing maintenance programs.

"Statement of Conformity" means a certificate on which an Industry representative certifies that a specific aeroplane, in respect of which the certificate is issued, conforms to the design standards as defined in TP 10141, Design Standards For Ultra-Light Aeroplanes.

### 2.6 Proposed Policy Statements

#### 2.6.1 General

Two-place ultra-light aeroplanes will be used for recreational purposes, flying training, and carriage of a passenger.

#### 2.6.2 Airworthiness

The ultra-light community will develop airworthiness controls for ultra-light aeroplanes for self-regulation; these controls will have to be acceptable to the Minister of Transport.

The airworthiness controls will include standards addressing design, manufacturing, maintenance and continuing airworthiness, as well as procedures.

The associations involved in the activity of ultra-light aeroplanes will provide Transport Canada with a list of qualified individuals, who will certify type design conformance with the applicable standards.

To be eligible for registration, ultra-light aeroplanes produced in an assembly line or assembled from kits will have to meet the applicable standards.

parts of the design standards.

Two-axis aeroplanes and motorized hang-gliders will have to meet only the applicable 2.6.3 Flight Authorization

AMO Section V No. 24 should include a requirement specifying that no person shall carry a passenger unless the words:

"Notice: This aeroplane is operating without a Certificate of Airworthiness" and an aeroplane in a position where they may readily be seen by persons entering the aeroplane.

2.6.4 Personnel Licensing

The Private Pilot License (PPL-UL) will be maintained to provide for the licensing of pilots operating in the PPL-UL category. Flight will continue to be restricted to uncontrolled airspace subject to the current availability of authorization to enter controlled airspace. A Private Pilot License Restricted category (PPL-R) will be created to permit the operation of PPL aeroplanes with the privileges of passenger carriage and access to controlled airspace.

A Commercial Pilot License Restricted category (CPL-R) will be created to recognize the increased training standards for instruction of pilots acquiring passenger carriage and controlled airspace privileges.

Transfer from the PPL-UL to the PPL-R and then to the PPL will be arranged to encourage pilots to progress to a higher license in the aeroplane category by allowing a partial credit of previous training to be recognized.

The medical requirements for the UL category of licenses will remain unchanged with Category 4 for the PPL-UL and Category 3 for the CPL-R.

The Restricted category licenses (PPL-R and CPL-R) will require a Category 3 medical.

2.6.5 Operations

Operation of fully enclosed ultra-light aeroplanes will be permitted without use of a protective helmet.

2.7 Airworthiness Standards

The design, manufacture, maintenance and continuing airworthiness of ultra-light aeroplanes shall conform to the following minimum standards:

2.7.1 Design

The Light Plane Airworthiness Standards (LPAS), as revised by LAMAC and accepted by Transport Canada, will continue the design standards for ultra-light aeroplanes.

These standards, that may be supported by advisory material, will be amended after 12/10/14. Design Standards for Ultra-Light Aeroplanes. They may be amended after consultation with the ultra-light community.

2.7.2 Manufacture

Manufacturers will have to ensure that their final product conforms to the type design by Internal Quality Assurance Procedures.

2.7.3 Maintenance

A recommended maintenance program shall be developed by the design/manufacturer and applied with every aeroplane produced.

2.7.4 Continuing Airworthiness

Manufacturers of ultra-light aeroplanes will be responsible for the continuing airworthiness of their products. They will have to support their products by conducting all critical and safety related activities resulting from the operation of their products. Manufacturers will be responsible for the issuance of Mandatory Modifications to correct unsafe situations, and for the dissemination of the information concerning the situation to the owners of their products.

The owner of an ultra-light aeroplane will be responsible for the embodiment of the mandatory modification in the manner and the time frame prescribed by the manufacturer.

Changes to mandatory modifications must be approved by the manufacturer or by an industry representative.

2.8 Procedures

2.8.1 Statement of Conformity

Manufacturers of ultra-light aeroplanes will deliver with each complete aircraft a Statement of Conformity (SOC) certifying that the aeroplane conforms to the design standards published in TP 10141, Design Standards for Ultra-Light Aeroplanes.

Ultra-light aeroplanes assembled from kits shall receive the SOC if assembled following the specific instructions provided by the manufacturer.

2.8.2 Application for Registration

In the Application for Registration of an ultra-light aeroplane, including a change of ownership, the applicant will have to declare that he is in possession of a SOC certifying that the ultra-light aeroplane conforms to the design standards in effect on the date of manufacture.

2.8.3 Validity of the SOC

The SOC issued by the manufacturer or by an industry representative, will remain valid as long as the aeroplane is maintained in accordance with the appropriate maintenance program and provided the mandatory modifications are implemented according to the recommendations of the manufacturer.

2.8.4 Maintenance

To keep an UL aeroplane in conformance with the design standards, the owner of an ultra-light aeroplane shall maintain the aeroplane in accordance with the manufacturer recommended maintenance program or with a comparable program approved by an industry representative.

2.8.5 Modifications After Registration

To maintain conformity with the design standard, the owner must have all modifications of an UL aeroplane approved by the manufacturer or by an industry representative.

Located at the Indus-Winter Aire-Park

- Flight Training
- Ground School
- Rentals
- Intro Flights \$20.
- Gift Certificates

Build and fly this popular kit for only \$6500.00

T.E.A.M. mini-MAX

- 2 place
- fully enclosed
- cabin heat

Macair Merlin

Dealers for



2.8.5 Change of Ownership

To satisfy the requirements for change of ownership, the original document certifying conformance to the standards shall be revalidated by the manufacturer or by an industry representative.

2.8.7 Pilot Training

The training requirements for the PPL-UL will be increased 5-10 hours to provide for increased training on higher performing UL aeroplanes and to respond to industry requests to establish a realistic minimum for this license category.

2.8.8 Commercial Pilot Pilot Privileges

Pilots holding a CPL-UL on the date of implementation will be permitted to continue instructing student pilots undergoing training for a PPL-UL license. CPL-UL pilots will be offered the option to upgrade their commercial license to the CPL-R or they may remain at the CPL-UL level. CPL-UL pilots will not be permitted to instruct student PPL-R pilots.

2.8.9 Implementation (Timeline data)

The proposed implementation date (tentative) for the Policy is December 31, 1992. Examples to the weight limitations, that will permit UL aeroplanes conforming to TP 10141 to operate, are available for processing upon acceptance of the airworthiness conditions referred to in paragraph 2.6.2.

2.10 Administrative Considerations

The related legislation required to implement the policy will reflect the self-regulated aspect of the controls. In particular:

9. UL aeroplanes that have been registered prior to January 1, 1992, may:

- a) qualify to operate under the new regulations and orders provided:
- the aeroplane has been inspected by the manufacturer or an industry representative.
- a maintenance program has been approved for the aeroplane.
- a Statement of Conformity has been issued and approved for registration.
- a new application for registration has been submitted to Transport Canada and a new Certificate of Registration has been issued.
- b) continue to operate without conforming to the design standards, including when ownership is changed, provided:
- the Air Regulations and Air Navigation Orders in effect on December 31, 1991, are complied with

7. While the legislative process is underway, Transport Canada should:

- allow, by conditional exemption, operation of the new generation UL aeroplanes meeting the design standards of TP 10141
- allow current PPL-UL license holders to fly the new generation UL aeroplanes in accordance with current UL regulations and orders, and allow holders of PPL (aeroplanes) licenses or higher IC by the new generation UL aeroplanes with a passenger.

5. Enhancement of pilot privileges permitting carriage of a passenger and flight in controlled airspace is consistent with the operation of aircraft meeting design standards and pilots licensed to the higher PPL-R category standards.

3. The Status Quo is therefore unacceptable.

2. The proposed kit form by the UL aeroplane industry is reasonable and responsible.

4. The proposed kit form by LAMAC and Transport Canada for the licensing of UL pilots and the operation of UL aeroplanes are reasonable and are compatible with the adoption of airworthiness standards for UL aeroplanes.

5. Enhancement of pilot privileges permitting carriage of a passenger and flight in controlled airspace is consistent with the operation of aircraft meeting design standards and pilots licensed to the higher PPL-R category standards.

3.9 CONCLUSIONS

1. Current legislation covering UL aeroplanes design and pilot operating privileges places undue restrictions on the continued development and growth of the UL aeroplane community in Canada.

2. The design, manufacture, maintenance and continuing airworthiness of ultra-light aeroplanes shall conform to the following minimum standards:

2.7 Airworthiness Standards

The design, manufacture, maintenance and continuing airworthiness of ultra-light aeroplanes shall conform to the following minimum standards:

2.7.1 Design

The Light Plane Airworthiness Standards (LPAS), as revised by LAMAC and accepted by Transport Canada, will continue the design standards for ultra-light aeroplanes.

These standards, that may be supported by advisory material, will be amended after 12/10/14. Design Standards for Ultra-Light Aeroplanes. They may be amended after consultation with the ultra-light community.

2.7.2 Manufacture

Manufacturers will have to ensure that their final product conforms to the type design by Internal Quality Assurance Procedures.

2.7.3 Maintenance

A recommended maintenance program shall be developed by the design/manufacturer and applied with every aeroplane produced.

2.7.4 Continuing Airworthiness

Manufacturers of ultra-light aeroplanes will be responsible for the continuing airworthiness of their products. They will have to support their products by conducting all critical and safety related activities resulting from the operation of their products. Manufacturers will be responsible for the issuance of Mandatory Modifications to correct unsafe situations, and for the dissemination of the information concerning the situation to the owners of their products.

The owner of an ultra-light aeroplane will be responsible for the embodiment of the mandatory modification in the manner and the time frame prescribed by the manufacturer.

Changes to mandatory modifications must be approved by the manufacturer or by an industry representative.

2.8 Procedures

2.8.1 Statement of Conformity

Manufacturers of ultra-light aeroplanes will deliver with each complete aircraft a Statement of Conformity (SOC) certifying that the aeroplane conforms to the design standards published in TP 10141, Design Standards for Ultra-Light Aeroplanes.

Ultra-light aeroplanes assembled from kits shall receive the SOC if assembled following the specific instructions provided by the manufacturer.

2.8.2 Application for Registration

In the Application for Registration of an ultra-light aeroplane, including a change of ownership, the applicant will have to declare that he is in possession of a SOC certifying that the ultra-light aeroplane conforms to the design standards in effect on the date of manufacture.

2.8.3 Validity of the SOC

The SOC issued by the manufacturer or by an industry representative, will remain valid as long as the aeroplane is maintained in accordance with the appropriate maintenance program and provided the mandatory modifications are implemented according to the recommendations of the manufacturer.

2.8.4 Maintenance

To keep an UL aeroplane in conformance with the design standards, the owner of an ultra-light aeroplane shall maintain the aeroplane in accordance with the manufacturer recommended maintenance program or with a comparable program approved by an industry representative.

2.8.5 Modifications After Registration

To maintain conformity with the design standard, the owner must have all modifications of an UL aeroplane approved by the manufacturer or by an industry representative.