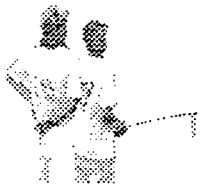

TASK

Official Newsletter of the Southern Ontario Glider Group Inc.

Volume 12 Issue 6 December 1996

Seasons greetings and my best wishes to all of you for a great new year!

This issue completes my first year as your editor and, unless someone harbouring a secret desire to take over as editor steps forward at our December annual meeting, I'll be back next issue!

Seriously, I have enjoyed the past year. It has given me a chance to meet many more people in our club and to appreciate the work that goes on behind the scenes. I'd like to take this opportunity to thank everyone who contributed to TASK this past year: Mike Penney, Stan Shaw, Bud Wallace, Al Hilborn, Bill Moar, Stan Giles, Juri Vosu, Albert Fund, and especially, Bill Woodward and Fred Freeman! Your support has made editing TASK a real pleasure and, in my humble opinion, it has made our newsletter one of the finest in the area. Thank you!

If we are to keep TASK vibrant, we need support from everyone. Your photos, reports, anecdotes, kit reviews, building tips, ads, etc., are what make TASK happen. Please support your local newsletter!

This issue we continue the scale "flavour" with some exciting news from the Scale Group and Fred Freeman begins a two part construction article on the Slingsby Kadet. If you're not yet in the mood to build a scale glider this winter, I guarantee you will be after reading this month's newsletter!

In our last issue, I mentioned the subject of the R/C chopper pilots sharing our frequency space. The matter was discussed at our last meeting. Bud Wallace has spoken to the sod farm owner who assured him that the choppers pilots would no longer be allowed to fly near our field.

Also with respect to the field, we have been asked to keep our cars off of it now that the ground is soft. Please park at the side of the road and walk in. There's a chance we may be moved one field west of our present position next year. We'll keep you up to date on this situation.

Remember, just because it's cold outside, that doesn't mean you can't go flying! I hope to be able to get out to the field on January 1st if the weather co-operates and do the "frozen finger fly" thing!

Have you renewed your membership to SOGGI? MAAC? Don't forget it's time again for both.

I am very sorry to report that Gladys Freeman passed away on November 26, 1996. Gladys worked very hard helping her husband, Fred, produce TASK in its early days. She had the tedious job of typing up the stencils for the Gestetner machine. I'm sure she also had a hand in collating it and filling in wherever else she was needed. I regret that I only once had the pleasure of meeting Gladys. I'm sure you all join me in extending deepest sympathies to Fred Freeman for the loss of this lovely lady.

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Inside This Issue

SCALE GROUP MEETING - NOVEMBER 23rd, 1996

We missed the input of Gerry Knight at this meeting,and wish him a full and speedy recovery from his surgery. Paul Schmidt was welcomed as a new "scaler" at this meeting,which took place at what has become our usual venue,the basement rec. room of the Centurion apartment building at Main and Dundas Streets in beautiful downtown Dundas.

The meeting got under way at approx. 2.30p.m. with Bill Woodward, who was "elected" to the position, in the Chair.

1.GNATS AERO-TOW 96

Phil Landray and Don Smith showed a series of photographs taken during this event,from which it was very clear that the meet was well attended; the presence of such a varied selection of scale sailplanes indicates that this could become a high point of many seasons to come. The club is to be congratulated for their enterprise and determination in staging this, the first event of its kind in Ontario. The fact that they suffered a slight loss on the refreshments can be put down to Mother Nature, who washed out the second day's flying.

2.UPCOMING EVENTS.

GNATS have tentatively fixed their 1997 Aero-tow for the weekend of AUGUST 24/25th. Date to be confirmed later. There was some concern over the possibility of a clash with events scheduled by COGG and SOGGI, **SOGGI SCALE DAY** -this prestigious and by now established event will again be "hosted" by Bill Woodward, who, in introducing the item, asked for opinions as to whether this should be a contest or a fun-fly type of event. Concensus was that some element of competition should be re-introduced, and the format finally decided upon was as follows:

Event will consist of a STATIC JUDGING; FLYING SEGMENT; and A PILOT'S CHOICE; awards for static and flying sections plus a bonus for pilot's choice; FEES-if you wish to enter STATIC ONLY the fee will be $5.00; if you only wish to FLY the fee will be $5.00; but you can do both, and be eligible for the Pilot's choice award, for a combined fee of only $7.00-so there!

3.2M SCALE

Bill Woodward announced that Fred Freeman is working on a project involving a 'smaller' or 'compact' scale model which might serve as a "beginner's" introduction to scale R/C soaring. Fred said that it will be based on the old "KISS" principle - Keep It Simple, Stupid!- and would perhaps appeal to someone who wanted a cheaper way of getting into the scale game, but had only limited building experience. He was eventually dissuaded from organising a contest for the category until sometime in the future (2000 perhaps?)

4.KEITH ARMSTRONG

Keith had brought along a mock-up of the rear turtle-deck of his Grunau Baby 1, his first attempt at a scale sailplane; consisting of a crutch to which he had attached triangular formers representing the upper rear half of the fuselage, and Keith wanted some re-assurance as to its accuracy; he had plotted(CAD) the size and shape of each former from the drawings in Martin Simons' book on Vintage sailplanes, but was surprised to find that the material with which he had covered the structure appeared to be twisted from front to rear. The answer is that, due to the fact that as the section becomes smaller toward the rear there is a decrease in the angle beween the hypotenuse of the triangle forming the turtle-deck's shape and it's base which is a normal feature of this type of construction - still, it's not a bad policy to check before getting any further into the project, Keith.

5.DON GUTHRIE on FLYING FIELDS

During the course of conversation, talk drifted onto the subject of availability of flying fields for the purpose of aerotowing; GNATS have a site whose owner allows the unrestricted use of gas-powered tugs, whilst we at SOGGI would be obliged to negotiate with not only the owners, but also the folks living around the field, some of whom have already shown hostility, even to electric powered gliders. Recognising the tenuous nature of agreements between owners and clubs, Don made the observation that it may perhaps be possible to get permission from the operators of one or more of the private airstrips dotted around the area to use the strip for aero-towing. General opinion was that the idea had a great deal of merit and steps should be taken to sound out some of these people. More later

6.TOW PLANES TO GO !

The preceding item gave rise to speculation about the acquisition of suitable tugs with the result that several people made offers; Bill Woodward suggested that we design and build our own version, which prompted Don Smith to offer us a Piper Super Cub which only needed re-covering; whereupon Don Guthrie announced that he could provide an engine,and Fred Freeman said he would donate a radio-INSTANT PROGRESS! The final offer came from Paul Schmidt, who offered to complete the project by covering the plane. All that needs to be done now is to find a field where we can fly! In this regard , Bill Woodward suggested the perhaps we could prevail on a power club to allow us to have partial use of their field for a demo. Perhaps, it was ventured, COGG would be prepared to put on a scale aero-tow -the possibilities seemed endless-but of course we were all wearing the rose coloured spectacles!

7. BILL WOODWARD ON SCALE SAILPLANE ASSOCIATION

Bill put forward the suggestion that the group consider the idea of forming a sort of "official" association within Ontario, and passed everyone a copy of his notes on the subject; he has obviously put a lot of thought into the preparation of these

notes and into the pro's and con's of the undertaking (a copy is included here for your perusal and consideration.) Bill asked that we think about the idea and we will try to make some kind of effort towards achieving the objective at the next meeting.

The meeting closed at about 4.30 p.m.

NEXT MEETING TO BE HELD JAN 18th, 1997(provisionally) same place same time.
SEE YOU THERE!

Fred J. Freeman

Notes on a Scale Sailplane Association:

Object and Goals of the association:

1. Provide knowledge and information regarding scale modelling.
2. To organize flying events.
3. To foster good relations with other modelling organizations and full size gliding organizations.
4. To provide equipment for scale sailplane events, i.e. tow planes, winches,etc.
5. To give a voice to scale sailplane modeller within the MAAC organization.

Area of operation: Within Ontario and surrounding Provinces.

Who may be a member: Anyone with an interest in Scale Gliders.

Organization: Set up as a club with a constitution (By laws), etc.

Elected officiers: President, VP, Treasurer, Secretary.

Funding: Mainly by subscriptions. Amount?

Magazine: To inform and enlighten. Information on scale events, and articles on subjects of interest to scale modellers. Would require an editor.

Some thoughts:

Flying events: (a) Initally sponsor four per year.
(b) To be arranged at glider club fields in co-operation with the club.
(c) Entry fee and other monies could be split be between club and association.
(d) Initially, I see GNATS, SOGGI, and COGG co-operating with the association to each put on an event. Possibly, power aircraft club could be persuaded to put on an event.

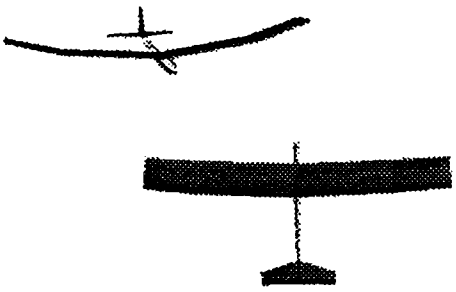
Providing Tow Aircraft:

It is unlikely that the association could fund the building and operation of a tow plane in the early years after formation. However, a group of members might band together to fund and build a machine. To offset the cost of building & operation of the plane, a towing fee could be charged for every tow.

Compiled by Bill Woodward, Nov.22/1996.

The following article is the first part of a paper written by Philip Edelbrock of Oregon. I am grateful to him for his permission to reprint this interesting article. Ed.

An Analysis of the Ideal High-Performance Hand Launch Glider (Part 1)



Objective

With existing equipment and information, the HLG can be built smaller and lighter for longer more enjoyable flights. The purpose of this paper is to try to bring together as much knowledge as possible to create the 'blueprints' for the ideal HLG. Specifically, this paper will try to find the design, in as much detail as possible, of a glider which will fit the specifications of a HLG with the best performance possible. But, before we can start, a few variables must be constrained to make the task easier. These constrains are:

*The HLG will have a conventional layout (no canards or other extra surfaces)
*It will not have a 'V' tail
*The control surfaces will primarily be on the tail (elevator and rudder)
*No control surfaces anywhere else (with the possible exception of flaps or ailerons)

Glider Layout

Our first task in designing the ideal HLG is to layout where the basic structures will go and some of the basic characteristics our glider must have. First of all, the glider should have the main wing placed far enough forward to allow the tail the ability to induce enough of a moment to control the glider, yet far enough back such that the center of gravity is approximately 30% back from the leading edge to the trailing edge. Note that moving the center of gravity farther back will make the glider more reactive, and forward will make the glider less reactive. The weight of the glider should be distributed as far forward towards the nose as possible with the receiver battery being the furthest forward to allow the main wing to be placed as far forward while still having the center of gravity in an appropriate location. This will give the control surfaces on the tail a longer torque arm to induce a moment on the glider resulting in better control.

Also of concern is the proper area of the tail surfaces as well as the pitch of the horizontal stabilizer. To aid in establishing these values, a computer program called "Glider Design" by NASA for the Apple Macintoshcan help establish a good starting point for these values. Typically, though, the area of the horizontal stabilizer is about a quarter of a square foot with a two or three degree pitch, and the vertical stabilizer is about a sixth of a square foot (both including control surfaces).

The main wing should be oriented such that the airfoil has the appropriate pitch as designated by the specifications of the airfoil. This will imply that the main wing will have a zero degree pitch with the horizontal stabilizer having a pitch relative to that of the main wing. The wing is usually held on by four #64 rubber bands (don't buy the cheap ones!) in a two parallel by two crossed pattern. The polyhedral is typically twice that of the dihedral which varies from a degree to several, but depends on the style or type of flying: polyhedral helps circling, and dihedral helps keep flight level. But, keep in mind that the greater the poly/dihedral angles are, the less efficient the main wing is during straight level flight

Airfoil Choice

The airfoil of the glider should have a low Reynolds' number and a relatively low drag. The covering of the airfoil should be tissue to provide a surface that reduces drag and increases the efficiency of the airfoil. Some suggested airfoils include the Selig 3021 used in the Skeeter", the Eppler 387 used in the "Zephyr", and the Eppler 205. A computer Program entitled "Foil" provides a good source of airfoils to work with.

Radio Choice

The radio used with the ideal HLG should be one that is of good quality, low cost, and low weight & volume (receiver, battery, and servos, specifically). Now-a-days radio systems come in many varieties which can be broken down into three types (see Table 1).

Even though a PCM system offers superior quality, the weight, size and cost of an AM system by far out-weigh it's disadvantages. As for the number of

channels, from two to as much as four is adequate. The type of servos for the HLG would have to be 'micro-servos' for their small size, weight, and power consumption. And lastly, the battery pack should be as small and as light as possible, typically a four cell 2/3AA NiCd. To put it all together, a suggested radio system is the glider configuration version of the Futaba 'Attack 4'. It gives room for expansion and provides everything needed at a low price.

Building Materials and Construction

Before actual construction of the glider can be started a few decisions must be made. The first is the type of coupling to be used between the micro-servos and the control surfaces on the tail. Our choices consist of a piano-wire push/pull rod, or a pair of strings tied to opposite sides of the servos and control surfaces. The strings, although less popular, provide a lighter, cheaper, simpler, and easier to install alternative that make them the choice coupling technique. The strings should be of a non-woven single strand made of either Kevlar or a similar material that will resist stretching. A simple technique of installation is tying one string to the control surface control-horn, then threading it through the servo-horn, and then tied to itself in a slip knot where it can be slid up or down the string loosening or tightening the string (see fig 3). Once the tension of the string has been set, the slip knot can be glued with a drop of CA glue.

Our last decision is what materials the glider will be constructed of. The structural components of the glider should be made from a substance which is light and fairly strong. Although balsa wood is not as strong as other substances, it is very light, cheap, and easily obtainable making it a good material to construct a majority of the glider from. For the areas of the glider where strength is a major factor (wing joints, key fuselage locations, etc.) ply-wood or composite materials would be more applicable. Note that some caution should be taken with the use of composites. Composites (graphite, Kevlar, carbon-fiber, fiberglass, etc.) when used are usually applied wrong such as by covering or wrapping around the surrounding balsa structures. When used, composites should be used as little as possible in the form of a whole structure or brace. Plywood, being cheaper and easier to get, gives a good alternative to composite materials while being adequately strong.

Philip Edelbrock

Type of Radio System	AM (Amplitude Modulation)	FM (Frequency Modulation)	PCM (Pulse Coded Modulation)
Quality of Control	Low	Moderate	High
Cost	Low	Moderate	High
Size & Wt of Receiver	Small & Light	Moderate Size & Weight	Large Size and Heavy

Table 1

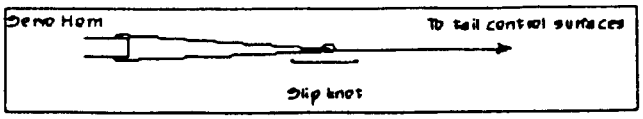


Fig 3 - A method of adjusting the tension of a control string

WHY BUILD SCALE? THE SLINGSBY TYPE 7 "KADET" - Part 1

Before we get into the intriguing business of design for this project, let's take a few moments to briefly review a little of the history of the type.

Built at the Kirby Moorside factory by Fred Slingsby's "elves" during the Dirty Thirties, the KADET was undeniably based on the earlier German designs (PRUEFLING,GRUNAU BABY) of the late twenties; no doubt the intention was to produce a "better" design from a British manufacturer - whether it was much of an improvement is open to question but despite it's limitations, the KADET was a qualified success, some 400 being sold, some as kits and some for export to Canada,Australia,and the U.S. in particular.Several still remain in airworthy condition (one in U.S.A. (40223)) and a few in U.K. serve alongside the newer training gliders mainly used by Air Cadets.As I said earlier,my reasons for choosing this type refer to it's simple lines and apparent economy of construction-plus,of course,because it's - BLATANTLY BRITISH!

There are several different categories of scale R/c models from semi-scale,through stand-off,to Museum scale.Let's decide right now that this project will be built to STAND - OFF scale; which really means that we don't have to concern ourselves with such finicky and controversial details as cockpits,instruments, and the like.You are,if you decide to build this bird,at liberty to add as much detail as you wish,but don't say I didn't warn you!What I'm after here is a scale model that's a reasonably good flier,not just for show.

Because of it's uncomplicated structure,the KADET is,I think/ perfectly suited to the role of an introduction to scale soaring; the general appearance -

straight lines,angular flying surfaces and box - like fuselage, together with the high wing position,will all appeal to the first time scale builder seeking something a little different from the usual run of duration type models. A quick look at the 3 -view will reveal that the type should be easy and quick to build and in the smaller mid - size version would prove to be relatively affordable and would leave plenty of space in the trunk of the car for all the other goodies we have to carry along with us!

From the standpoint of flyability there's very little that needs changing except the obvious,which is that we use balsa to keep the weight down, in place of the spruce,pine and other heavier woods.The ribs,which would be fabricated from stripwood and ply in the full- sized version,will be made from sheet material,quite possibly 1/32 hard "C" grain balsa in view of the large number required if we are to copy as near as possible the "look" of the original construction.The fuselage would also have been fashioned from strip and ply frames with harder woods used at points of stress.Since these materials would be rather heavy for our size of model,we'll be substituting balsa wherever we can, with a few added braces where needed;and to cover the portions which,in the original were ply,again balsa will be used.We'll pay special attention to keeping the rear of the model as light as possible by using appropriately lighter grades of balsa. Where ply was used to form the nose,for instance,we'll be employing balsa thicker and heavier than any used on the sheeted areas of the rear of the aircraft in order to preserve the C.G. in the correct location - you can see on the 3 - view that the nose is very short,as is the case in most of the Vintage class of gliders, but it would be difficult to lengthen it without radically changing the appearance of the model in relation to the subject aircraft; we must compromise by saving weight wherever we are able to without affecting the integrity of the airframe.

This plane has a very broad wing chord and a large stab. with generous elevators; in addition, it is very "short - coupled" i.e. the tail moment (the distance from the trailing edge of the wing to the leading edge of the stab) is less than 1.5 times the chord of the wing, a situation which could cause some longitudinal "twitchiness". To offset this I'd like to add about 1" to the moment (about 3%). I would also use a flat bottomed airfoil and keep the decalage (difference between incidence of wing and that of the stab) down to 2 degrees. The changes will not affect the appearance vis a vis the full size by more than 5%.

One more aerodynamic change will be made. The square, blunt wingtips of the original were thinned by tapering the thickness of the wing from a point about 60% from the tip; this we can do, but since I am unable to ascertain whether or not any degree of washout was built into the wing, I'd like to build 1/8th to 3/16ths into the ailerons during construction to avoid any possible tipstalling; although the chord at this point is quite broad, I feel that this will help, especially at low speeds. The two wing panels will be attached to a centre section 2" in width, which will be permanently anchored in the fuselage. Wing joiners will be two 7/32" dia. steel rods through brass tubes and the wing struts will locate at hard points in the lower fuselage and wings; they will be partially load-bearing.

That's all till next time, so just keep thinking scale, and

Don't forget to
Drift with the lift!

A Note of Appreciation

Fred Freeman has asked me to extend his appreciation to everyone who attended the memorial service for his wife, Gladys, and visited at the funeral home.

He is most grateful for your support.

Ann Tekatch

For Sale

Multiplex LS3 Sailplane with radio (Multiplex Combi80 model).
Wingspan is 100"+.
Previously owned by Phil Landray.

Call Gary Puhl @ (905)732-7407, after 6:00 p.m. for details.

SOGGI MEMBERSHIP LIST

Armstrong, Keith	219 Governors Rd.	Dundas	ON	L9H 3J7	(905)627-4011
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Baltaza, Joseph	19 Gaitwin St.	Brantford	ON	N3P 1A9	(519)751-3698
Batt, Robert	612 Blue Forest Hill	Burlington	ON	L7L 4H3	(905)632-8790
Bewley, W., Jr.	27 Newcombe Rd.	Dundas	ON	L9H 7B4	(905)
Bewley, W., Sr.	#309-155 Park St., S.	Hamilton	ON	L8P 3E7	(905)544-7548
Campbell, Rob	34 Hopkins Court	Dundas	ON	L9H 5M5	(905)627-9435
Colley, Dick	101 Braeheid Ave.	Waterdown	ON	L0R 2H5	(905)
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Fritz, Kurt	R. R. #2	Dundas	ON	L9H 5E2	(905)689-4171
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Gardener, Arnold	202 San Pedro Dr.	Hamilton	ON	L9C 2E1	(905)383-4418
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Hammett, Bob	183 Uplands Dr.	Kitchener	ON	N2M 4X3	(519)576-7636
Hartwell, Derek	39 Isaac Brock Dr.	Stoney Creek	ON	L8J 2P1	(905)578-7991
Hilborn, Al	175 Hewat St.	Cambridge	ON	N3H 4H2	(519)653-0049
Hildesheim, Werner	4 Foster Cres.	Cambridge	ON	N1R 4R1	(519)623-2663
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Linghorne, Jack	55 Anglesey Blvd.	Islington	ON	M9A 3B8	(416)233-0230
Lockwood, Ken	R. R. #5	Guelph	ON	N1H 6J2	(519)821-9947
McHugh, Chris	261 Broadway Ave.	Hamilton	ON	L8S 2W7	(905)527-3607
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Penney, Mike	388 Massey Dr.	Ancaster	ON	L9G 3J9	(905)648-5843
Penney, Paul	388 Massey Dr.	Ancaster	ON	L9G 3J9	(905)648-5843
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Schmidt, Paul	37 Wells St.	Guelph	ON	N1E 6B7	(519)836-7131
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Vandereyken, Gerry	56 32nd. Street	Etobicoke	ON	M8W 3G4	(416)255-4517
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Wallace, Bud	1060 Eastmount Ave.	Mississauga	ON	L5E 1Z3	(905)274-3177
Watson, Stewart	26 Juanita Drive	Hamilton	ON	L9C 2G3	(905)385-8214
Wheten, Waldo	90 Duke St.,Pent#5	Hamilton	ON	L8P 1X6	(905)527-4457
Wilkins, Doug	8448 Twenty Rd., E.	Hamilton	ON	L9B 1H7	(905)679-4973
Woodward, Bill	520 Pine Street	Cambridge	ON	N3H 2S6	(519)653-4251
Yates, Paul	96 Highman Ave.	Cambridge	ON	N1R 3L7	(519)740-0122

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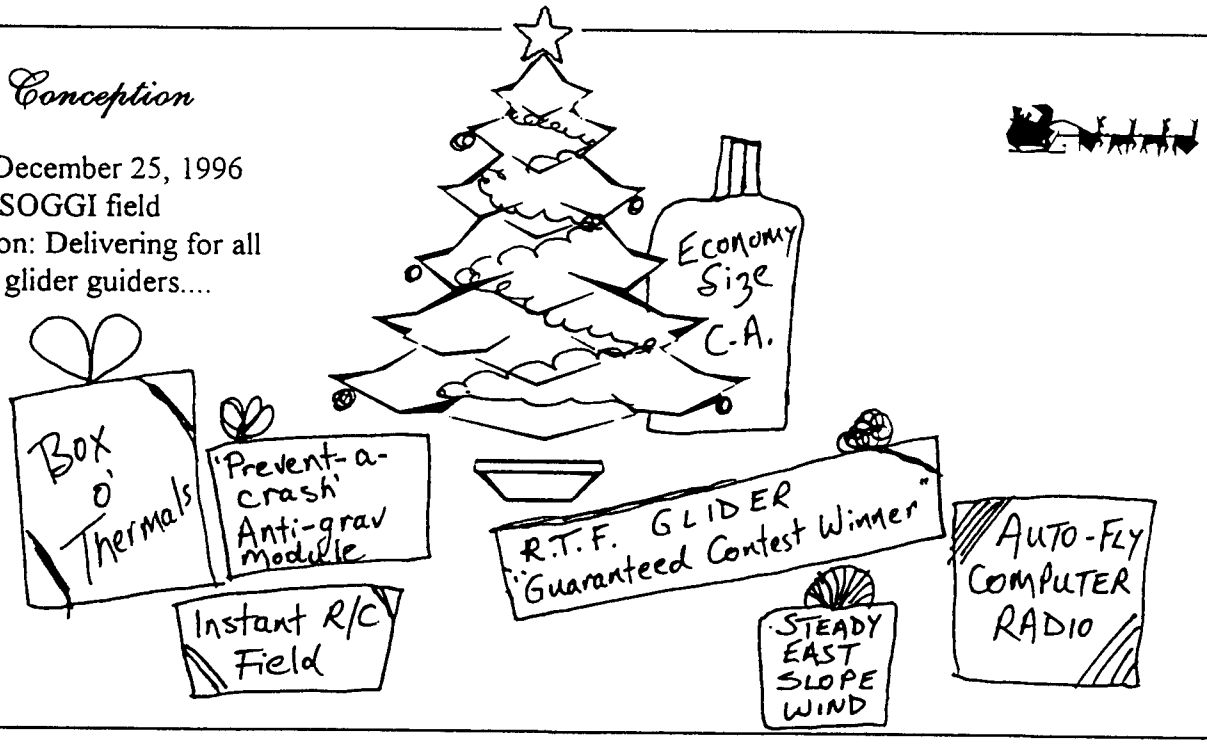
Deadline for February issue of TASK:Jan.31/97
Phone, fax,email, modem, mail, hand-deliver or snowshoe your articles/photos to me!

Artist's Conception

The Date: December 25, 1996
The Place: SOGGI field
The Situation: Delivering for all those good glider guiders....



1997 Calendar of Events

January 12/97 SOGGI meeting. 2:00 p.m., Rockton Library, Rockton, Ontario
January 18/97 Scale Group Meeting, Contact Fred Freeman at (905)627-9090 if interested and for confirmation
February 9/97 SOGGI meeting. 2:00 p.m., Rockton Library, Rockton, Ontario
March 9/97 SOGGI meeting. 2:00 p.m., Rockton Library, Rockton, Ontario

Merry Christmas!

Happy New Year

The Southern Ontario Glider Group Inc. is a chartered club of MAAC.