

# Auxiliary-powered Sailplane Association

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MAY-JUNE 1997 NEWSLETTER



## FROM THE PRESIDENT

This has been a very busy two months since the last newsletter. The International Gliding Commission met in Brussels on March 14 and 15, 1997 and the FAA published the Final Rule on Part 61 in April. Both of these events will affect auxiliary-powered sailplane flying. First, the IGC meeting. The following information is courtesy of the SSA Homepage: <http://acro.harvard.edu/SSA/>

Twenty-eight nations were represented at the IGC meeting in Brussels and representatives from the Soaring Society of America attended the meeting. Decisions were made on record flying, hand held GPS receivers, the 18 meter class and 2-seat gliders flying in FAI class competitions with regard to pilot crew and more. (See homepage.)

Over the objections of the U.S. Delegation the council ruled that after October 1997 World Motorglider Records and two-place records will be eliminated. The use of hand-held GPS receivers connected to approved flight recorders for badges up to and including the diamond badge was approved. The GNSS FR Approval Committee (GFAC) must approve each flight recorder and handheld combination prior to use.

The IGC voted to add an 18 meter integrated class as a FAI class in the Sporting Code. The class will include pure or motorgliders with a wing span of 18 meters or less. As per IGC rules, there will be no world competition for a minimum of four years. The addition of the 18 meter class will not cause the elimination of any other class.

For FAI competitions in a 2-seat glider, the second person (co-pilot) must possess a FAI sporting license. Any pilot wishing to fly with a co-pilot(s) must submit to the organizers prior to the start of the competition a list naming the co-pilot(s) in sequence. Should the pilot elect to fly, for any reason, without a co-pilot on any day, he must fly without a co-pilot or ballast in the second seat for the remainder of the competition. Contact the SSA at 505-392-8154 for complete information on the IGC meeting.

Over one year ago the ASA worked very diligently with the SSA to develop a reply to the then existing Notice to

Proposed Rule Making for the re-write of Federal Air Regulation, Part 61, Pilot Certification. The FAA proposed to establish a class for powered gliders and a class for nonpowered gliders within the glider category for the private pilot, commercial pilot and flight instructor certificate. ASA leadership polled the membership asking whether gliders should remain as one class with some revisions or if two classes were more desirable. The ASA membership overwhelmingly responded that gliders should remain as one class with certain changes to clarify checkout procedures. The ASA and the SSA rewrote Part 61 which pertained to gliders and this was presented to the FAA in Washington. This cooperative effort was very successful and the following is a direct quote from the FAA.

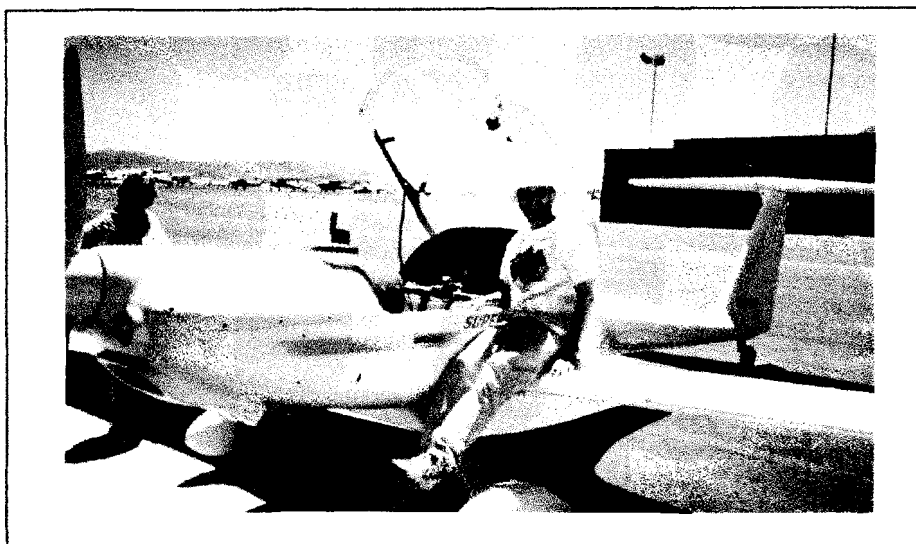
**FAA Response:** After reviewing the comments, the FAA has decided not to create separate class ratings for nonpowered and powered gliders. Instead the FAA has decided to accept the alternative suggested by industry that would establish training and endorsement requirements for specific glider operations in lieu of placing limitations on pilot certificates as is currently required. This change will reduce the regulatory burden on the public, as well as the administrative burden for the FAA, while providing a level of safety equivalent to the current regulations. The FAA has added paragraph (k) to 61.31, which provides training and endorsement requirements for operating gliders.

I would like to thank the ASA membership, many of which provided lengthy papers to me on this subject. I would especially like to thank Larry Sanderson, Jim Short and Gene Hammond, who helped us develop our recommendations and then successfully presented them to the FAA. This is an outstanding example of how membership grass roots support can provide leadership with tools and ideas that help a government agency write rules that enhance safety as well as reduce regulatory burden. The cooperative effort by the ASA and SSA and the unified response presented to the FAA was clearly very effective. Congratulations.

## PILOT'S REPORT

### The Super Dimona Motor Glider

by Martin Hellman



*I bought a Super Dimona (SD) motor glider almost two years ago and am very happy with it. I've put about 300 engine hours and 500 airframe hours on it in that time, so I've come to know it well. I chose the SD (now called the Katana Extreme in the USA to trade on the Katana's popularity) for a number of reasons, given roughly in their order of importance to me:*

#### CLIMB PERFORMANCE

At the time I bought it, the SD had the best climb performance of any of the motor gliders: 830 fpm standard day, sea level, and that's honest! Even the new, turbo charged Stemme gets only 800 fpm, though it will beat the SD at higher altitudes. Of course, it costs twice as much. I fly a lot in the Sierras and have to deal with 10,000 foot density altitudes and occasional strong downdrafts on takeoff. I have never had a problem, even with a passenger and full fuel. When I was learning to fly, my instructor scoffed at motor gliders as "dangerous" due to inadequate climb. After I got my ship, he flew with me out of Minden, NV (4700' MSL) on a warm summer's day and was duly impressed, estimating the climb rate at 600 fpm. The 100 fpm service ceiling is around 17,000' and again seems honest based on my experience.

Note: The SD is now available with a Rotax 914 engine option for about \$6k and 11 pounds more weight. Climb performance increases to over 1200 fpm!

#### ENGINE RELIABILITY

The Rotax 912A engine has a reputation as being highly reliable and this has been borne out by my experience thus far. In fact my mechanic marvels at the lack of any oil drips. The engine has water cooled cylinder heads and the plane has a cowl flap so, unlike the Limbachs or Grob engines, you don't have to worry much about thermal shock when you shut down after a climb. At

least on the Grob 109B that I flew, the Limbachs also had a problem with the oil temp getting high during climb, something I've never experienced with the SD, even flying out of Nevada desert airports in the summer. In contrast, the Grob 109B I flew got hot during climb even when the outside air temperature was 60° F. Don't confuse the Rotax 912 with the less reliable 2-cycle Rotaxes used in many self-launching sailplanes. And, don't confuse the Rotax powered SD with the prior Limbach powered version. A European I met at Minden told me his club had a SD but that they had a problem with engine reliability, and that was the SD's reputation in general. But on further discussion, it turned out he was talking about the Limbach powered SD.

#### AVAILABILITY OF PARTS

Unlike many motor gliders, the SD is currently in production and with a company that seems likely to be around for a while. (When I was deciding what to buy, the Taifun looked attractive, but was an orphan plane, some of which had gone experimental for lack of certified parts.) HOAC, the Austrian company that designed both the SD and the Katana and sold the Katana design to Diamond Canada to produce, has now merged with Diamond Canada, so with the Katana's acceptance, long term parts availability looks even better now than when I bought. The SD's similarity to the Katana also came in handy when I needed a canopy cover: the pattern was the same as for the Katana, which pattern was already in hand at the shop. When I need parts, I call an 800 number in Canada and get help from an excellent customer service organization. On the negative side, parts that are unique to the SD have to come from Austria and have taken forever, but so far none have been critical to flying. I'm hoping and expecting that expedited service is available on those. If it isn't you'll get another review!

## PRICE

At \$91k list when I bought it, the SD wasn't much more than most used motor gliders and you're getting a new plane with superior performance. The 109B's were going for about \$65k, the Taifuns for \$75-100k, etc. The only much cheaper motor glider (\$40k) was the Grob 109A and its climb performance in the mountains was too low for me. Avionics pushed my SD's price up to approximately \$100k, a lot of money, but cheap for a new plane when new Cessna 172's are going for about \$130k. The current price I was quoted in preparing this article was about \$10k higher, which removes some of that advantage, but not all.

## POWER CRUISE PERFORMANCE

I live 150 nm from Truckee and Minden, both near Lake Tahoe and with excellent soaring. The SD typically gets me over the Tahoe area in 1.5 hours (100-105 kt TAS once I'm at altitude), using only about 1/2 of its 21 gal fuel load. This is comparable to the Taifun, Grob 109B, and Super Ximango; slightly better (speed wise) than the 109A; but much better than some of the other motor gliders such as the Vivat. I'm not comparing to the self-launching sailplanes like the DG400 which are a different kind of ship, not designed for cruising under power.

## SOARING PERFORMANCE

Compared to modern high performance sailplanes its 28:1 glide ratio is anemic. But it's in the same ballpark as all the other tractor engine motor gliders except the Stemme, which costs twice as much. (Again, I won't compare the SD with the retractable engine, self-launching sailplanes such as the DG400 since they are a totally different design and function.) So the soaring performance is not really a weak point when compared to the motor glider competition in the same price class.

A friend, who soared competitively in the '60's and was usually in the top 10 in the US Nationals in the open class, flew with me from Minden past Lee Vining and back and was very impressed. We used 1.2 engine hours for a 5.7 hour flight, including taxi, run-up, etc. The thermals that day were strong, but far apart, so that my friend said he couldn't have done the task in his LS4. He was thinking of buying a SD but had questioned its soaring ability. At the end of the day he complained, "You're going to cost me a lot of money." My best ratio of soaring to engine time was out of Tonopah, 4.0 hours flight time on only 0.16 engine hours, again including taxi and run-up. But that flight changed the way I fly the SD. Once launched, I flew it like a pure sailplane. When we hit a wall of sink, we kept hitting our heads against the wall and retreating to gain altitude and try again. Although we had a great air time to engine time ratio, we only completed 75 nm (round trip) of a planned 300 nm cross country trip. If I'd been willing to turn the engine on for 5-10 minutes, we could have broken through the wall with ease.

I used to say that the SD, and most of its motor glider brethren, had poor penetration due to the high parasitic drag associated with the fixed gear and prop. I now say it has great penetration ... if you're willing to turn the engine on for a few minutes.

The high ratio of TTE to TTAF (300:500) on my ship should not be taken as a condemnation of the SD's soaring ability. The 1.5 engine hours I put on my ship every time I fly to Tahoe to soar is about 1/3 of what a DG400 pilot would put on his car driving there! I've also flown the plane purely under power to get places, as if it were a power plane, though I can still enjoy doing the final glide with the engine off.

## MAINTENANCE COSTS

When it is needed at 1200 hours, engine overhaul is going to cost only about \$5k through Diamond Canada. Also, the Rotax uses automotive engine oil and spark plugs, at a significant cost savings. It also runs best on unleaded auto fuel (but is certified for 100LL as well), which can save \$0.50 a gallon. To be honest, I'd rather pay the extra \$2.00 per hour of engine time (at 4 gal/hr) and not have to haul fuel cans around. I could burn 100LL and not mess with fuel cans, but am babying the plane with unleaded. (Note: If you burn much 100LL, do NOT follow the Rotax manual's recommendation to use synthetic oil. It does not dissolve lead by-products of combustion and is likely to lead to early engine failure. Rotax recently put out a service bulletin on this, but I fortunately became aware of the problem earlier thanks to an Aero Shell ad in AOPA Pilot magazine.)

## ELECTRICALLY CONTROLLED PROP

While the electrically controlled constant speed prop is a plus when under power, it becomes a minus when soaring since it takes about one minute to feather or unfeather. You therefore have to start unfeathering 500-1000' above the altitude you want to turn on the engine. That's not much of an issue when I'm at 15,000' MSL in the Sierras, but it is when first turning off the engine (typically 1500-2000' AGL) or when I soar locally out of Palo Alto with cloud bases 2500-4000' AGL. In both those cases, I soar unfeathered, increasing minimum sink from about 250 fpm to 325.

Note: Current spec sheets indicate a hydraulically controlled and feathered constant speed prop, which should eliminate this problem.

## INABILITY TO WINDMILL START

The Grob could be windmill started at 80 kts if the battery or starter failed. The Rotax has a gear reduction drive and is either very hard or impossible to windmill start. Another SD owner told me he did get his to windmill start by going near Vne, but it wasn't a maneuver I'd like to try. The Pilot Operating Handbook does not mention windmill starting.

### DIFFICULTY IN TAKEOFF AND LANDING

I did my motor glider transition in a Grob 109B. When I moved to the SD, I could usually grease the Grob onto the runway, and expected the transition to the SD to be a piece of cake. Instead, the first time I got in the plane, it felt like I'd forgotten how to fly! Takeoffs and landings looked like those of a novice pilot. After 10 hours dual, I could handle the plane OK, but still felt a bit uneasy.

Some of this difficulty can be laid to my inexperience (only 250 hours at the time, so who was I to judge how easy the transition between two similar looking planes should be?) and some to the higher performance of the plane (that 830 fpm climb increased takeoff torque compared to the Grob). But conversations with a number of more experienced pilots who have flown the SD confirm that it is a challenging plane to takeoff and land. While a negative in one sense, two CFIGs in Colorado who instructed in the plane, told me they like it because it pushes the pilot's ability. As one of them put it, "If you can fly a SD well, you can fly most small planes."

I may be overemphasizing the problem, as evidenced by the fact that they used the SD as a club ship, with pilots new to the plane able to solo in a reasonable time, and in the Denver area no less. A factor affecting takeoff (not documented in the Pilot Operating Handbook!) is that the plane has poor rudder authority almost until takeoff speed. Hence, if you do the usual tail dragger thing and raise the tail at 20 knots, it's easy to lose directional control. Wheel landings are also not possible as a result. (Also not documented, though the handbook never mentions them as being possible either.) The US dealer who checked me out in the plane recommended three point (soft field) takeoffs, to keep the tail wheel steering you until lift off. I've used that technique, but once found myself in a dangerous attitude when a sudden, strong, short headwind gust lifted me off the ground before I should have been. There had been no wind prior to my starting my takeoff roll, but my prop blast probably triggered a thermal, with an attendant inrush of air. Conclusion: Be extra alert on takeoff and landing with a SD! Never relax.

Note: A new version of the SD is now in production with a nose wheel for about \$2k and 33 pounds more weight. The nose wheel will simplify takeoff and landing, but will cut into soaring performance. The spec sheet claims  $L/D = 27:1$  for the nose wheel version vs  $28:1$  for the tail wheel, but the polar is likely to fall off faster.

### STALL WARNING

Earlier models did not have it, but my plane was blessed with a stall warning device. While a nice safety feature when flying under power, and for letting me know when I'm getting close to takeoff speed and have rudder authority, it's a royal nuisance when soaring. Diamond ought to put a switch on the device, so you could turn it on in power mode and off in soaring mode. (The Stemme works that way automatically.)

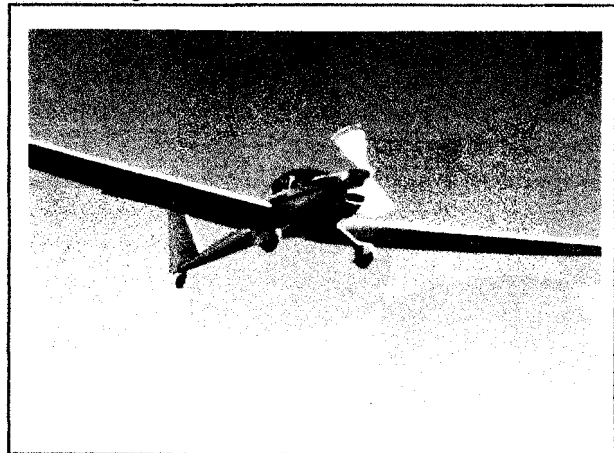
### HEAVY RUDDER CONTROL

After a day of flying, my leg muscles almost feel like I've been bicycling instead of flying. OK, that's a slight exaggeration, but the rudder control forces are high. All control forces are high compared to a light weight, single seat pure sailplane, but the rudder pedals are the main offenders. I'm not sure, but this could be due to fairly strong springs used to neutralize the rudder when pedal pressure is removed.

### COWL FLAP CONTROL

For the first year, my cowl flap control often stuck, sometimes to the point that I wondered if I'd be able to open the flap after soaring. More recently the problem has disappeared, along with a few inches of the inner sheath of the cable. Apparently the cable was overheating when the flap was closed, so that the cable "spot welded" itself to the inner sheath. As the inner sheath was shed, so was the problem! I've reported this to the factory, but no recommendations have been forthcoming so far. While it's working OK, I'd prefer a cleaner fix than losing some of the inner sheath.

*After all my comments, where do I stand? In my opinion, the SD is the hands down winner of the currently available tractor engine motor gliders in its price class. I'd recommend it not only to sailplane enthusiasts who have gotten old, lazy or wise (and I'm not sure there's that much difference between those three), but also to a power pilot considering buying a new Cessna, Piper or Katana. The time to get a glider rating restricted to self-launch, needed to fly the SD, would be minimal. For less money than the Cessna or Piper, and about the same as the Katana, you get a comparable performance power plane that also can soar. And the safety factor that comes from doubling your glide ratio, should you lose the engine, is a major plus, as is the ability to practice "dead stick" landings as a normal occurrence. (ASA members know, of course, that this is a misnomer. The stick is alive and well even when the engine is dead.)*



Martin E. Hellman is Professor Emeritus of Electrical Engineering at Stanford University having taught there for 25 years. He is an enthusiastic pilot who has done his homework on flying the SD. More info? 415-857-1377

**A Unique Approach...**  
**The Final Glide & Landing Approach**  
**of the**  
**Atlantis Space Shuttle Glider.**

U.S. Navy Captain W.F. Readdy describes a typical final glide to a landing at the Kennedy Space Center near Orlando, Florida in an interview with U.S. Naval Institute Editor Fred L. Schultz.

"We did our deorbit burn over Australia. This was the last powered event of the flight. Our orbital track took us over the Pacific Ocean in darkness. As we started to sink into the atmosphere, we were surrounded with a pink-orange glow so bright we could read our check lists. We were in a right hand turn the entire time passing over Vancouver, British Columbia, then down the Appalachians, and over Cecil Field, Jacksonville, FL, arriving over K.S.C. at 55,000' and Mack 1. We continued in our right hand turn to lineup with Runway 15. The manual flying of the orbiter is much like flying a dive-bombing pattern entering the outer approach in a 20 degree dive at 300 kts. At about 1,700' agl the glide slope is shallowed to about 1.5 degrees. The gear is lowered on short final at 300' agl and deceleration continues to a touch down speed of about 200 kts. The entire evolution is similar to coming aboard ship and the tolerances are very exacting. At touch down the drag chute is deployed and nose gear lowered to the runway. The drag chute is so powerful, only minimum braking is required to stop."

— The Atlantis log book after this flight recorded 4 million miles, 240 hours and 160 Earth orbits with a final glide of over 13,000 miles!! Quite a flight!!

Source: USNI Proceedings Feb. 1997

**WAIVER FOR MOTORGLIDERS**  
**PARTICIPATION IN THE 1997 OPEN CLASS**  
**NATIONALS APPROVED BY THE SSA**  
**CONTEST COMMITTEE.**

1. Pilots flying Motorgliders with enabled engines may participate in the 1997 Open Class Nationals.
2. The rules that apply shall be those that pertain to Motorglider participation in an FAI class at a Regional contest. Amongst other provisions, this means that use of an engine will result in the pilot being scored as if he had landed at the last turnpoint achieved before the engine was started.
3. Entry fees shall be the same for all entries.

4. There is no waiver of rules pertaining to launching - all launches (including re-launches) shall be by aerotow. The exception will be that if any sailplanes incapable of being towed (e.g. Stemme S-10) are entered, self-launching will be permitted only for such entrants. If such sailplanes do enter, rules controlling their launches will have to be devised.

6. The relevant Regional rules provide that the extra burden of flight documentation falls on the Motorglider pilot. It is expected that such pilots will willingly support this effort.

7. No alteration in tasking philosophy is contemplated - tasks should be appropriate to a National-level Open Class competition.

8. The results achieved by entrants flying Motorgliders shall count in the determination of a National Champion and the awarding of SSA Medallions.

9. The results achieved by entrants flying Motorgliders shall not count toward positions on the Pilot Entry Priority List and not toward US Soaring Team selection. For these two purposes, the contest will be re-scored counting only non Motorglider entrants.

10. Results of this experiment will be evaluated, with all interested parties given a full chance to comment.

11. This is a one-time waiver: there will be no automatic extensions of its provisions to any other contest.

Submitted by: John Good

**IN MEMORIAM**

A tragic accident occurred on March 2, 1997 at Wauchula, Florida. According to Barbara Lloyd, **New York Times News Service**, Lars Bergstrom, an aeronautical wizard whose personal affinity for boats led to numerous innovations in yachts as well airplanes, died Sunday when his glider crashed two miles from the Wauchula airport. According to the NTSB's preliminary report a Windex 1200C departed Wauchula at 1558 and crashed while maneuvering 49 minutes later. The pilot reported to his ground crew that he had successfully completed some stall tests. The crash occurred sometime later.

The Windex was on display at the SSA Convention this year. The design innovations and quality workmanship was apparent to everyone who saw this beautiful ship. We extend our condolences to his family and friends and hope that the project continues and that this creative design is a success.

## RECORD FLIGHT NOTIFICATION

According to FAI Awards Coordinator Judy Ruprecht (414-249-0704/Email: judyssa@aol.com ), notification of ANY claim for a National or World Record must be made by FAX, Email and should be followed up by phone to Judy between 8am and 6pm Central Daylight time Monday through Friday. Be prepared to give the following information.

1. Record class: Specify General or Feminine.
2. Sub-Class: specify all that apply: Glider and/or Motorglider, Single and/or Multiplace. For national records only, Standard and/or 15 meter and/or Open Class.
3. Type. Specify all distance, speed and/or altitude records types that apply per sporting code 3.2.3
4. Performance: Distance, speed and/or altitude figures appropriate to the claim.
5. Pilot: Name.
6. Ship flown: Make, Model and Registration number.
7. Take-off site and Departure point. Place names and coordinates if handy.
8. Turnpoint(s) and Finish Point/Goal: Place names and coordinates if handy.
9. Date of Flight

**Editors note:** Courtesy of Jackie Payne's **Badge and Record Book**, Third edition, page 25: For World and National Records the SSA in Hobbs, NM must be notified within 48 hours. Also, the pilot must hold a valid FAI Sporting License upon the payment of \$10.00 and issued by the SSA. This is separate from your SSA membership card. This is a yearly license that expires on December 31st. The minimum age of a passenger in a multiplace glider is 14 years old. If a multiplace glider is flown without a passenger, it is considered a single place glider.

## AIRWORTHINESS DIRECTIVE

**Reference:** 97-08-06 Louis L'Hotellier, S.A. Ball and Swivel Joint Quick Connection: Within 30 calendar days after the effective date of this AD or upon the installation of the quick connectors, whichever occurs later, the safety pin guide hole in the lock plate must be enlarged to 1.2mm (0.05 in.) to accommodate a safety wire or pin and a placard installed in the cockpit using 1/8 inch letters stating: "All L'Hotellier control system connectors must be secured with safety wire, pins, or safety sleeves, as applicable, prior to operation". **Editors note:** All pilots flying sailplanes with L'Hotellier Quick Connection fittings should contact Mike Kiesov, FAA, (816) 426-6932; FAX (816) 426-2169 for a copy..

## Parachute Design Standards

Parachutes come under the FAA's Technical Standard Order (TSO) system, defined by Federal Aviation regulation (FAR), subpart O, which specifies the minimum standards by reference to other specification documents (National Aero Standards, and more recently SAE Aerospace Standards). Among other things, these referenced documents call out the number of qualification drop tests and live jumps to be made, along with the test speeds, weights and configurations required for design certification. FAR 21 also specifies the quality system requirement to which all FAA approved manufacturers must adhere.

C23b provided for a "standard" category (tested to a 5,000 pound shock load), and a "low speed" category (tested to a 3,000 pound shock load) which was restricted to aircraft under 150 MPH by a large red placard on the outside of the parachute. This latter category was essentially designed to accommodate reduced needs of sailplane pilots and skydivers, while the standard category was essentially an "unlimited" category and required no restriction.

**To often**, pilots knowingly sacrifice safety to cost and comfort in the cockpit, since they expect never to use the parachute. Still, selection criteria must include comfort because many pilots fly 4-8 hours at a stretch, and it is really unlikely they will ever use the parachute in it's emergency role. Besides comfort, weight, and cost to the consumer, the manufacturer's certification cost is sometimes a consideration. **Strong Enterprises** has one design, for example, that is certified for use up to 150 knots, but the U.S. Navy has tested it to 300 knots; and while it has been tested at 300 pounds, there was no provision in TSO C23c to placard it to more than 254 pounds.

Despite the limitation placard, the parachute does not care how fast the aircraft is flying. If you bail out at a low speed and delay the ripcord pull, your body will accelerate in freefall to a terminal velocity of about 120 MPH over a period of several seconds; but if you bail out at a high speed, wind resistance will slow you to about 120 MPH. What matters is your speed through the air at the moment the parachute container opens since this dictates the deployment time and force on the parachute system. **Remember**, too often pilots hesitate valuable seconds before making the decision to bail out, and then take crucial time, to jettison a canopy, release the lap and shoulder harness, pull knees from under the panel, climb over the side in an unusual attitude and pull the ripcord: It may take 5,000 feet or more!

**Practice your emergency procedures in the cockpit with all the gear in place, because your parachute really is your life insurance- if you do not have it when you need it,**

Courtesy of Sport Aerobatic Magazine



**ASA NEWSLETTER  
ADVERTISING RATE CARD #1**

Both Display and Classified Advertising can be published in the ASA Newsletter in the following sizes and rates under the following conditions:

**CONDITIONS & CONTRACTS**

1. All advertisements are subject to the approval of the Editor.
2. All advertising orders must be confirmed in writing.
3. In the event of a rate increase, the new rates apply to all insertions.
4. Advertisers assume liability for all ad content and costs to place the ads as well as any claims against the publisher arising from claims made by the advertiser.
5. Cancellation of the space contract, in whole or in part, forfeits the right to the contract rate and the rate will be readjusted to conform to actual space and frequency at current rates.
6. Publisher is not liable for delays in delivery and/or non-delivery in the event any condition beyond the control of the publisher affecting production or delivery in any manner.

**ADDITIONAL CHARGES**

Production Costs- All Display Ads must be camera-ready. Charges will be added for typesetting or keyboarding or changes generated by the advertiser. Production Services are \$25/hour to those advertisers unable to provide camera-ready art.  
Inserts- Noncancellable and available by special quote.  
Catalogs- This is a request for 2 or more consecutive full pages. Special quote.

**DISCOUNTS & COMMISSIONS**

Available for frequency of 3 & 6 time Insertions. See Rates. No advertising agency commissions are offered.

**PAYMENT**

All Display and Classified Ads are payable in advance.  
Payment by personal check, Money Order or Certified check in U.S. dollars for U.S. advertisers. International advertisers pay in U.S. Dollars by certified check only.

**DISPLAY ADVERTISING RATES**

	1time	3 times	6 times
Full Page	\$200	\$100	\$75
1/2 Page	\$120	\$60	\$45
1/4 Page	\$70	\$35	\$27

**CLASSIFIED ADS**

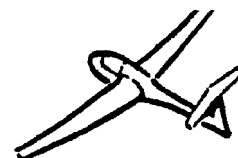
All Classified Ads must be prepaid for 3 insertions and do not earn frequency rates. Ads cannot be canceled or refunded after closing date. The rate is \$.50 per word.

**MECHANICAL REQUIREMENTS & SIZES**

	Width X Depth
Full Page	7" X 9"
1/2 Page	7" X 4.5"
1/4 Page	3.5" X 4.5"

85 line screen/scan for photos is minimum acceptable. There will be a production charge for scanning photos. Contact the Editor prior to submission of computer generated ads on a floppy disk. No color ads accepted. Mail all ads to: ASA Newsletter Editor Suzie Capitano P.O. Box 254245, Patrick AFB, FL 32925 USA  
Pho: 407-242-5902

## Classified Advertising



### Sailplanes for Sale, Two Place

1982 Grob 109A self-launching motorglider, 2 place, 311 TT. Hoffman 3-position propeller, Limbach 2000cc engine, King avionics, 4.5 gph @ 108 cruise. No medical required  
Chuck 815-434-4327.

### Partnership Wanted

Dutch DG-400 pilot/owner is looking for a **PARTNERSHIP** (50% or less) with an American DG-400/800 or ASW-26E owner with preference in the Minden (NV) area.  
Intention: ca. 6 weeks/year gliding in the USA.  
FAX +/31 343 431534 ROZENDAAL

### ASA Publications:

The following pubs available pp USA:

Solo 2350C Service Manual.....	\$6
FAA Advisory Circular 61-94.....	\$2
Flying the DG-400.....	\$4
Safety Survey of Motorgliders.....	\$4
Pilot-Owner Survey/Motorgliders.....	\$4
Safely Flying Aux-pwrd Sailplanes.....	\$4
DG-400 TN Listing.....	\$ASE
Powered Sailplane Repair Survey.....	\$4
Rotax Manuals 275 501 505A 535C	
Pilots	\$2 \$2 \$2 \$3
Repair	\$4 \$4 \$4 \$4
Parts	\$5 \$4 \$5 \$4

Pete Williams 1033 Dresslerville Road  
Gardnerville, Nevada 89410 Checks to ASA

