

# Auxiliary-powered Sailplane Association

## March-April 1999 Newsletter

Stan Nelson-President • Bruce Templeton, Vice President

Issue # 67 Vol. XII

ASA, Inc. is a Division of the Soaring Society of America

BiMonthly

### President's Message....

The Soaring Society of America annual Convention was held in Knoxville Tennessee, February 24-29, 1999. The Auxiliary-powered Sailplane Association sponsored a Breakfast and heard two time Motorglider National winner David Volkman give a talk on the activities of the Air Sailing, Nevada annual soaring camp. Competition pilot and instructor Oliver-Dyer Bennet also gave a slide show and talk about flying a DG-800B and DG-505MB in Lece Bled, Slovenia. The ASA conducted its Annual Membership Meeting and elected two new Board Members, long time competition pilot and Motorglider Nationals winner, Rick Howell and the above mentioned and well known DG driver, Oliver-Dyer Bennett. We welcome the addition of these two outstanding soaring enthusiasts to our Board. During the SSA Banquet, the prestigious Paul E. Tuntland Award for Distinguished Service to Further the Science of Soaring during the Year 1998, was awarded to Pete Williams, former President of the Self-Launching Sailplane Pilot's Association. Pete has been the driving force behind the motorglider movement in the United States since its inception in 1988. Congratulations Pete!

At the request of several members, the following is a partial list of flight instructors authorized to check out pilots in a motorglider:

Shawn Knickerbocker, Jacksonville, FL, 904-269-6412/Taifun

Russ Hustead, Fountain Hills, AZ. 602-836-0126/Katana Xtreme

Cell: 602-791-SOAR/r.hustead@mci 2000.com

Glider Bob, Telruride, CO. 314-726-0143 Stemme

Oliver-Dyer-Bennet CA 707-942-5727/5725 DG-505MB

Dennis Michaud, Nederland, CO. 303-258-3774 Ximango

Charles Cheeseman, Daytona Beach FL, 904-760-4072 Ximango

Stan Nelson, Taos, NM 505-776-1557

Rolf Peterson, Livermore, CA 510-447-5620 DG-500M. Grob 109

Tupper Robinson, CA 408-395-9576 DG-500M

Please notify ASA if your name is not on this list and you are qualified to train and sign off motorglider pilots. Fly Safe.

Stan Nelson

### INSIDE THIS ISSUE

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### Submission of Newsletter Articles and Advertising

The deadline dates for submissions are 15 Dec for Jan-Feb; 15 Feb for Mar-Apr; 15 Apr for May-June; 15 June for Jul-Aug 15 Aug for Sept-Oct and 15 Oct for Nov-Dec. Issues. Submit hard copy typewritten or keyboarded text in 12 pt. font size. Photos will be returned. Send to Pete Williams, 1033 Dresslerville Rd., Gardnerville, NV 89410 USA. **Pho: 775-265-3877; Fax: 775-265-6179; E-Mail: ftb@pyramid.net**

### MINDEN SOARING CLUB NEWS

Soaring activity at the Minden-Tahoe airport continues to grow. There are over 70 sailplanes based at MEV including a dozen self-launchers. Recent developments include the restructuring of MSC as a non-profit corporation with the mission of on-going and active liaison with the airport and county authorities to assure flight operations and airport improvements as related to sailplanes are fair and equitable. In addition, sailplane parking and user's fees are being reviewed. MSC represents soaring at MEV and publishes a quarterly report of airport activities in the MSC Newsletter. To become a member, send \$10 to MINDEN SOARING CLUB, P.O. Box 361, Minden, NV 89423.



Don Briggs prepares for a checkout flight by Ed Peerens in his Nimbus 4DM at Minden-Tahoe Airport

### 1999 Aux-powered Nationals

#### Scheduled at Hobbs, NM

Due to the time required to properly develop, document and flight test Tonopah as a contest site, the Aux-pwr'd Nationals will be held at Hobbs in conjunction with the 15-Meter Nationals on 6-15 July 1999. To enter, contact Bob & JoAnn Dittert at P.O. Box 684, Hobbs, NM 88240 or call 505-397-3611 or 505-392-7449.

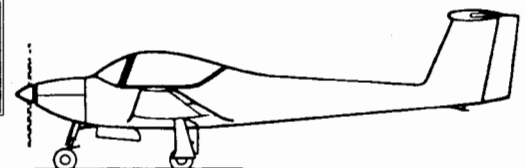
Flight Recorders are required.

### TONOPAH TASK FORCE

Stan Nelson is establishing an ASA Task Force to survey the Tonopah area, select turnpoints and routes and develop the infrastructure to support national and regional contests. The premiere use of this site is planned for next year.

### ATTENTION TAIFUN OWNERS!

Since there is no factory or dealer support program for this motorglider, a newsletter and mailing list have been developed to promote the exchange of information among Taifun owners in the U.S. and Canada. Of the 26 Taifuns shown in the FAA database, 18 are already included. The 8 missing owners are urged to join the group and participate in this self-help program. Benefits such as wiring schematics, copies of all factory Technical Notes and a recurring Q&A column are available for nominal reproduction costs. There will be no charge for the TAIFUNNEWS during the first year trial; thereafter an annual invoice will be sent to cover printing and postage; however, the owners must participate to make this program work! Contact: TAIFUNNEWS, Joe Volmar, Publisher, 1864 Irish Road, Dundee, MI 48131, Tel: 734-529-5406, E-Mail: joevol@dundee.net *Editors Note: This is a very professional newsletter with lots of meaty information.*



## Pilot Profile

Gale D. Johnson, Jr.

Gale is a U.S. Airways Captain living in Charlotte, NC. He first soloed in a glider in November 1974 at Chester, SC. He has over 18,000 flight hours, with 470 glider hours, many of them while flying at Minden where he recently completed his check out in motorgliders flying a DG-500M. His soaring experience covers flights in 24 different sailplane models. After over a years wait, Gale finally took delivery of his new ASH-26E in late fall 1998. He is looking forward to entering 18-Meter Class competition. For an idea of the intensity of Gale's dedication to soaring, let him tell it like it was on his most memorable flight which was an attempt to earn his Diamond Goal Award.

"Got started late because of a line of gliders awaiting tows at Minden. Finally got up and headed for 395/Bodie Rd intersection just south of Bridgeport, CA. Struggled about two hours getting to that first turnpoint. And then really struggled over Sweetwater towards Dayton. Because the east side of Yerington Valley looked better than the Pinenuts, I proceeded up on the shoulder of Mt Grant and worked my way north. Got so low at Yerington that I made a pattern to land with the gear down and locked. At about 500 feet above touch down I hit a little up and it seemed to be coming from the mine wall just south of the field. So I left the gear down and worked a 1-2 knot thermal for about 45 minutes and eventually climbed to 14,000 feet and left for the final turnpoint at Dayton airport. Trouble was coming. At Dayton the sun had just dropped below the Sierras as I took my picture. I left for Minden and had to click the mike button five times; you can probably guess why. Arlene Colson listened to my story, said I should check with someone at the FBI who specialized in photographic interpretation. The picture of Dayton was a beautiful shade of gray, but that's about all. Of all my memorable flights during the last twelve years at Minden .... this tops the list." Gale successfully completed his Diamond Goal flight in July 1990.

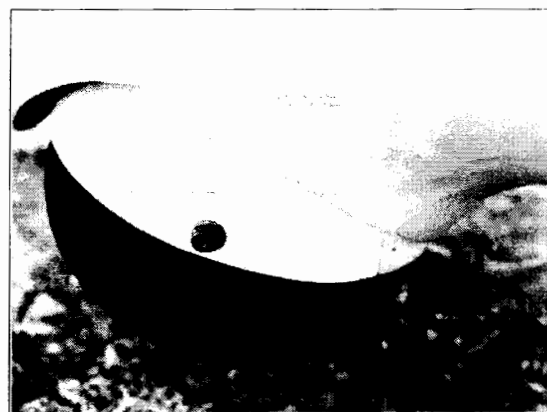
When asked why do you fly a motorized sailplane, Gale replied "INDEPENDENCE !!! --Launch & fly when and where I want when the sailplane and I are ready."



Photo by Charlie Spratt

### TAILWHEEL FAIRING

This fairing streamlines and reduces noise of the tail wheel and the tail wheel opening on DG-400 and 800 sailplanes. It consists of two fairings: One to streamline the vertical bulkhead just aft of the tailwheel and one that covers about 55% of the tire. The fairing is a white gel coated glass fiber cover enclosing the wheel in the front and sides. It is secured by the axle bolt. A curved inside fairing is glued to the bottom and rear bulkhead of the tailwheel cavity. It is produced by Peter How of Composite Technologies P.O. Box 5253, Halfway House 1685, South Africa : Fax: 011-2711-805-5745 E-Mail: afriair@cis.co.za



How Photo

### For Sale

**PIK-20E (Rotax 501):** 1980 TTAF 887; TTE 127; Immaculate Original Condition. Cambridge CNav; PZL Vario & Electric T/B; Artificial Horizon; 720 Chan Dittel; 02; Factory Trailer with Solar Panel; One-Man Rigging; Parachute; Baro with Engine Sensor. \$47,500 which includes Sea Freight Paid to U.S. East Coast Port. John McWilliam (N. Ireland) Tel: 011-44-1238-542300; Fax: 011-44-1238-542345 E-Mail: mcwtech@mcwni.u-net.com

**PZL SZD-45A "OGAR" Motorglider:** 2-place side-by-side, dual controls. 80hp Revmaster/Turbo Engine; Rate of climb-700fpm; Payload 486lbs. L/D 27.5; Engine on cruise-92kts; Annual July 1998; MUST SELL-NO REASONABLE OFFER REFUSED! Located at Huachuca City in SE Arizona. 520-456-2286 Fred Toczko

**Super Dimona 1995 (Katana Xtreme):** Original Owner; TTAF-800hrs; Five hrs fuel; Climb out at 800fpm and cruise at 100kts; L/D 28:1; King Mode C Transponder and GPS/Com. Garmin 95 GPS; Cambridge Nav; Artificial Horiz: \$80,000. Based at Palo Alto, CA. Martin Hellman Tel: 650-857-1377 9AM-9PM; E-Mail: hellman@lelnd.stanford.edu

**TAILWHEEL FAIRING KIT for DG-400 or 800:** New from Composite Technologies Half-Price for \$100 + Shipping. Rudolph Allemann 509-375-0722 (WA) See above photo and description.

## THE MONSOON SAFARI

By Ken Seymour

*Editor's Notes: Ken's flights are truly pioneer flights where he sets a destination and then adjusts the flight as weather conditions and topography permit. He is a determined and resourceful pilot who knows how to interpret the weather and is either on cloud 9 or heading toward a safe place to land. His preparations include sleeping gear and the willingness to tough it out both in the air and on the ground. The availability of a high performance powered sailplane makes flights (and adventures) like Ken's possible. Here's his account of a 1998 excursion in his DG-800A which he bases at Stead Airport, Reno.*

"After hearing of great soaring at previous fly-ins at Parowan, Utah, and remembering beautiful scenery when I visited the area by bicycle many years ago, I made plans to join this year's group organized by Rolf Peterson. Originally I was expecting to drive to Parowan with family & DG-800A in tow, but our schedule got tight and the only way I could participate was to try to soar (or motor) over from Reno. The first week of the Utah gathering offered superb soaring, so I heard, with cloud bases to 20K and participants over-flying the Grand Canyon and many other national parks. Unfortunately my 4-day window was during the 2nd week which was overshadowed by an unusually heavy monsoon flow. My longest flights in Nevada have occurred when moisture moved in from the south creating scattered thunderstorms, so with trepidation I set out from Stead (N of Reno), cockpit stuffed with sleeping bag, tent, clothing, cell phone, portable radio, tiedown kit, 50:1 oil, food, & water.

From the Reno weather office on July 20:

WEATHER SYNOPSIS: HIGH PRESSURE REMAINS OVER THE GREAT BASIN. MID AND UPPER LEVEL MOISTURE ROTATING AROUND HIGH ACROSS CNTRL AND NE NEVADA. LOW LEVEL MONSOONAL MOISTURE ALONG COLORADO RIVER AREA. WEAK-MDT INSTABILITY DEVELOPING SE OF A LINE FROM SOUTH LAKE TAHOE TO WINNEMUCCA THIS AFTERNOON. LIGHT SOUTH TO SOUTHWEST FLOW SFC-ALOFT ACROSS THE AREA.

**July 20:** I departed at 10:30 AM, the forecasted trigger time (the local soaring forecast predicted 1500'/min lift by 2pm). However, I had to struggle at 1000-2000' AGL for 2 hours N of Reno. There were no nearby cu, but the predicted unstable area was already overdeveloping, so I took dead aim at the northern ridge of Mt Grant which offered the closest clouds en route. The hills near Tracy plant & Silver Springs provided enough lift to get me there at 2pm. By then rain was falling over Mt Grant and points northeast. I snaked my way around the cells, passing over Shurz & Mina, then encountering wind shear under upper level overcast with no cu for some 50 miles.

About 10 miles past the Tonopah airport I decided to test my motor to make sure it would start if needed. I was at the border of my experience area (my last flight was an O&R to Tonopah), about to cross an 80-mile expanse devoid of airports, population and water. The Rotax has never failed me, but can be tough to start when cold. Turning back to within a few miles of the field I raised the engine in lift and it worked immediately, renewing my confidence. I shut it down after climbing 300', preferring to work the 1-2kt thermals until realizing that I had lost too much time to make it by dark to Utah unless I doubled my speed (it was already 4:30 PDT and sunset would be much earlier than in Reno). Rather than trying to get

clearance to enter the restricted airspace to the south (with closer cu), I chose to motor about 4 minutes towards the east, followed by a glide down into the cu on the next ridge, with an irrigated field in range. The next 2 hours was a challenge in navigation even with GPS, trying to identify landout spots and access roads. Around 7pm I was working low on ridges northeast of Panaca, the only paved strip between Tonopah and Parowan, watching frequent lightning strikes blocking the route 30 miles east. At this point I chose a new destination, St. George, 50 miles south in the clear. Lift under the edge of the spreading overcast became quite violent (alternating + 10/-10kts in one circle) so I dove out to the southwest until encountering smooth convergence lift, possibly generated from outflow from the cells. With St. George below 3,000' MSL, I had an easy final glide, arriving just before sunset. They built the airport next to a cliff on a bluff over the city, so the downwash / drop-off combination looked deadly in high crosswinds. The 13 knots I had to deal with was a challenge (I used a steep approach, touching down with near full spoilers.) Dennis Holland, an area native who flew about the same task (from Placerville, CA) in a Cessna, was kind enough to show me the town and shuttle me to & from the airport. The Unicom staff was also quite friendly, replenishing the 4 liters of gas I used. Sleeping was nearly impossible with lightning strikes every 30 seconds from a storm that slowly moved in from the south, culminating in a rare downpour about 1 am (I tried to camp out).

**July 21:** It was mostly sunny by morning, with cumim & altocum showing up early over the high ground. Predicted thunderstorms led me to launch early (11 am MDT) in order to reach Parowan before the deluge, but the overnight rain and low elevation made thermalling difficult. After 90 boiling minutes I managed to reach the first wisps on the flanks of the Pine Valley Mts., learning that once each wisp formed, the thermal below was already history. Eventually I got up nearly on top of the breathtaking wilderness area; a cell was already producing rain on top, so I skimmed the edge at 10K'. From here I could see an enormous cell spreading from Kanab to Bryce Canyon, so I abandoned most of my hoped for sightseeing, settling for an overflight of Zion Park and a quick landing at Parowan in the shadow of the growing storm, 3 hours after launch.

Landing so early with beckoning cloud streets was a tough but wise choice, as the entire area became heavily overcast with scattered showers within an hour. I spent the afternoon having lunch & touring Cedar Breaks with Ben Barrentine, a fellow crewless motorglider pilot who was able to enjoy the fine weather & scenery here last week. I drank 2 pitchers of water but still wasn't fully re-hydrated from the flights. With cheaper rooms sold out, I chose again to camp in the drizzle at the airport.



View NE over Zion Nat'l Park taken on 7/21 at 1:30pm  
Note developing cell. Parowan Airport is 30 mi. North.

**July 22:** The next morning was mostly overcast, especially in eastern Nevada as the monsoonal flow was increasing its penetration. With little chance to soar locally and overdevelopment expected for several days over Nevada & Utah, I prepared to try to get back to Reno by using the motor &/or morning lift, figuring on laying over at towns along the way during heavy weather. I planned to follow a northerly route to stay closer to civilization and possibly avoid the stronger storms. Ben tried to help me fill my wing tanks with gas, but his DG-400 fuel pump connections didn't mesh with mine; he did top off my main tank for me with premixed fuel, which helped protect my limited supply of oil. *Continued on Page 4...*

### MONSOON SAFARI *continued...*

Dale Thompson, another crewless Parowan participant who flies a 135 in the Reno area headed toward home at about 8:30 AM pulling his trailer along a route paralleling mine and promised to monitor my progress on 123.3. I launched at 10AM, and finding no bumps over the nearby hills, settled in for a morning of sawtooth motor & glides to Ely. Without wing tanks or lift, my range at 8000' is about 12 miles/liter times 21 liters. I did spend a few minutes thermalling in the early going, and found one productive cloud south of Ely, but with 2/3 of my tank empty and surrounded by thick overcast, I gave up & landed at Ely. Time to refuel & get a hotel room with good cable for the weather channel. There was only one spot where my landout options looked poor - southeast of Ely where the road was staked and the areas free of vegetation weren't too smooth. At that location, Dale was directly underneath, giving useful land-truth reports. He arrived at the airport just in time to take me to town for lunch. I would have preferred his 4-hr drive to my 2-1/2hr flight without question. I picked up a liter of oil from the local sporting goods store, walked about 4 miles around town in light rain and finally settled down in front of a fuzzy TV screen for the afternoon. The Las Vegas stations were reporting on the continuing flooding, the satellite photos were grim, and the forecast was worse. This was not my idea of a vacation.

July 23: When nervous before flying, I can't eat, so I skipped breakfast the next morning again and walked the 4 miles to the airport. It was solid overcast, but raining only to the north and south. This time I filed a flight plan to Reno via Eureka, Battle Mt., Winnemucca & Lovelock. Departing at 9 PDT, I used 5 motor climbs to sawtooth to Eureka where I stowed it for good, after reaching some wisps in patches of sunlight. For the next 6-1/2 hrs I had the most challenging flight of my career, nursing one knot climbs barely above hillsides for 20 mile glides over valley floors, paying extreme attention to how I would reach a dry lake or field with access for a retrieve. I was constantly matching my GPS coordinates with the sectional, bewildered by the foreign look of the terrain from such low vantage points. My tactics included deviating towards areas blessed with the longest recent insolation even when 90 degrees off course. At one point south of Winnemucca every wisp I turned under greeted me with rain. By now SIGMET advisories for the whole state were coming from flightwatch. I extended my flight plan by 2 hours. The steady morning rain over Lovelock had turned into a large blue hole by afternoon, providing a good test for the DG's best glide angle. I dropped from 10,000' to 7,000' over 25 miles of farmland to reach the (5000') slopes northwest of Derby airport where the air finally regained some buoyancy. Eventually I reached good lift taking me into Stead, but had to dodge several large cells over Fernley, Reno and Air Sailing, and couldn't avoid rain on the descent." From the Reno Gazette-Journal: "thunderstorms rolled Thursday into northern Nevada, ending a month long dry spell in Reno, churning a tornado near Ely and triggering flashfloods in Fernley."

### Monsoon Flight Summary:

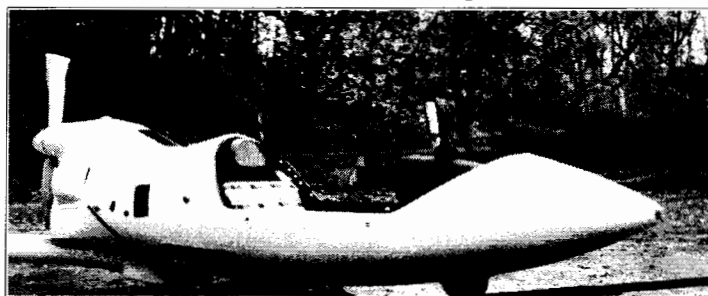
7/20: 9.5 hrs, 450 miles soaring, 5 miles motoring  
 7/21: 3 hrs, 90 miles soaring  
 7/22: 2.7 hrs, 20 miles soaring, 160 miles motoring  
 7/23: 7.5 hrs, 280 miles soaring, 65 miles motoring

Ken Seymour has been soaring since 1989. He purchased his DG-800A in 1994 and has logged 480 self-launching hrs. Prior to moving to Reno, Ken made several commute type flights between Pullman, WA and Reno.



Wally Simmers and Frank Garcher stand by their Scheibe 2000, 80hp 2-place motorglider. Both have been a supporters of SLSPA since 1990. Wally is one of the few members that has made tax free donations to our non profit organization. Frank is the CEO of MidWest Products, a major manufacturer of model airplane kits and home crafts products. Wally also owns 2 Fournier RF-4s. Both live in Indiana and are active motorglider pilots.

### The Astir L3 Motorglider



Hans Lohr of Pickering, Ontario is a homebuilder and sent ASA some details on his modification project of a Grob 102 Astir which he purchased from an insurance company. He installed a pusher propeller Rotax 503 and modified the tail to a boom configuration. He also built a trailer for the ship. The L3 has been successfully flown and Hans is working on a 3-blade folding propeller. In Hans words "The first flight was fantastic. The climbing rate was good. At 2,000' agl, I put the engine on idle and in no time was at 5,200 ft-a dream! Gas consumption is not bad at all. I have used as little as 10 liters in two hours. I usually cruise at 3,000 rpm. If you want to do something like this, you must have the desire, time and dedication plus the help of friends. The project has taken 4 years."

### Astir L3 Motorglider Specifications

Wing Span.....15 Meters  
 Wing Area.....134 sq.ft.  
 Wing Loading.....7.9 lbs/sq/ft  
 Empty Weight.....770 lbs  
 Takeoff Weight.....1,080 lbs/max  
 Motor.....Rotax 503, single carb.  
 HP.....46@ 6,000rpm  
 Fuel.....Auto mixed at 50:1 (32liters cap.)  
 Max Speed.....100kts  
 Stall.....38kts  
 Climb Rate.....4-500fpm

For more information contact Hans Lohr, 1910 Altona Rd.  
 Pickering, Ontario, L1V 1M7, Canada





Jochen Ewald Photo

### More on the New Carat Motorglider....

Technoflug, a German motorglider manufacturer, has recently completed the certification flight testing for its latest product the CARAT. A Sauer 1.8 Liter Volkswagen engine powers the single seat, low wing airplane. Cruising speed at sea level is 133 mph at a mere 2.8 Gal/hour. Constant power-on-range is 610 miles with no reserve. Even without thermal or ridge lift, the range can be significantly increased by shutting the engine occasionally down and flying a sawtooth profile flight path. The Carat is utilizing the wings and the horizontal tail of the famous DISCUS Glider, which is one of the best Standard Class gliders ever produced. With its 15-meter (49-ft) wingspan, the CARAT has a glide ratio of 35:1. Minimum sink engine out is 120 ft/min. The retractable main gear is fully covered by fairings and the propeller folds automatically forward to reduce drag, if the engine is stopped. The Carat is fully trailerable in a small, enclosed Standard class glider trailer. It can be put together by one person in less than 10 minutes. All controls connect automatically for safety and convenience, when the wings and the horizontal stabilizer are mounted. There are no tools required and no loose parts involved. The Carat's seat and rudder pedals are adjustable to almost all pilot sizes. Takeoff and landing run is 450 ft, best rate of climb 750 ft/min. The Carat's speed brakes allow descents of 60 degrees, without exceeding the airplane's Vne of 150 mph. The Carat will be certified for simple positive acrobatic maneuvers, like Loops, Hammerheads and Immelmans. Due to its capability to be trailerable and being a one-man assembly airplane, combined with superb engine-on and out performance, the Carat is considered the ultimate tool for recreational independent power flying and gliding. The first production CARAT will be on display at the AERO 99 in Friedrichshafen in spring of 1999. A detailed pilot report from an independent test pilot is available in English upon request, with good quality detail and air to air pictures at no charge. For more information contact Technoflug's Intl sales manager Tom Dietrich at # 49 711 513 484, Fax: 519 145 or e-mail SNOWBIRDXX@AOL.COM (Technoflug Press Release)

### Flight Report Excerpts from Jan/Feb 1999 MGI International Article by Jochen Ewald

The two-wheel main undercarriage makes the Carat look like the ME-109's little sister. The method of retraction is one of her special features. The legs are swung forward, one at a time, by an electro-hydraulic system. The wheels disappear into the forward fuselage just behind the engine. It has hydraulic actuated disc brakes including a parking brake. Empty weight is 716 lbs and maximum gross takeoff weight is 1036 lbs. Takeoff run at a field altitude of 2,000 ft agl was 650 ft and the climb rate on a warm summer day averaged 550 fpm to 3,280 ft above the takeoff site. Cruise at 75% power (2800rpm) was 112 mph increasing to 125mph at 3000rpm. At 2600 rpm the cruise was 105mph providing a power-on range of over 600 miles! Stalls are gentle with the buffet onset at about 49mph. After securing the engine, the prop stops and the blades disappeared forward out of my view. Technoflug lists the glide angle at 1:35 at 65mph. Minimum sink is 148fpm at 56mph. Restarting the engine requires but a short push on the starter button. The Carat is clearly a successful design and seems to fill a gap in the market for a fun motorglider with credible soaring characteristics. And last, but not least, she just looks nice!

## A Brief (unofficial) History of the ASH 26E Fan Problem

Submitted by Eric Greenwell

Powered sailplanes alleviate some problems, like getting launched and retrieved, but the motor also means they have problems an unpowered sailplane will never have. This is a description of the only significant problem the Schleicher ASH 26E has had since its introduction in early 1994, a remarkable record for a powered sailplane with a unique propulsion system.

The engine used in the Schleicher ASH 26 E is produced by Mid-West Aero Engines in England. It is a single rotor, 50 hp Wankel rotary engine, based on the engine used in the Norton motorcycle, and also in various airplanes and ultralights. In the glider, it is mounted stationary inside the fuselage, with 90% of the engine heat rejected by water cooling through a radiator, and 10% through cooling air blown through the crankshaft and rotor. Once the engine is shut down, the propeller is lowered to a nearly horizontal position, where it is left for one to two minutes (depending on ambient air temperature), allowing more of the retained heat to escape the engine bay through the still-open doors. Thermalling is unaffected by this nearly retracted position, but of course, high speed cruising suffers! At the end of the cooling period, the propeller is lowered the remaining distance and the doors close automatically.

If the engine is not cooled sufficiently after use, the retained heat of the engine causes high temperatures at the fan impeller. This heat, over time, caused the plastic impeller in the original fan to loosen slightly on its shaft, a problem aggravated by improper tolerances on some of the impellers received from Mid-West's supplier. The symptom was a gradual loss of power over several flights, not catastrophic failure. In addition, a few pilots habitually shut the doors too soon, and some flew with the air temperature sensor not operating. The gradual power loss due to reduced compression was noted in about five gliders. When the problem was determined, the mounting of the fan on the shaft was redesigned. Also, it was decided to increase the air flow by using a smaller pulley on the impeller shaft to increase the fan rpm, and a faster responding air temperature sensor to improve the pilot's awareness of the situation. The new fan was installed in production aircraft beginning with SN 26121, and retrofitted to most earlier gliders (96 total, 6 in the USA) by the end of 1997. A further improved fan with a black impeller was used on production units SN 26134 and higher, and for retrofits done after Nov. 1997.

Eventually, a new problem surfaced among gliders equipped with the new fan with a white impeller: the blades on the impeller would fatigue at the base of the blades until the blade(s) failed and vanished into the engine. This failure occurred on one USA glider, requiring

the engine to be returned for repair to the Mid-West Aero in England. Once it was realized that the white impeller was again at fault, a temporary inspection and operating procedure was developed to allow owners to continue to fly their gliders until an improved fan was installed.

The cure was to have all owners with the "white fan" install the "black fan", which has a substantially redesigned impeller manufactured of carbon fiber reinforced material. The design has a much stronger attachment of the blades and distinctly improved efficiency. A larger pulley runs the fan at a 25% lower rpm, greatly reducing the stresses. The "black fan" was not developed for the ASH 26 E, but was already in use on the engines supplied for the ASH 25 E, which operates at 7500 rpm to provide additional horsepower, but was not thought necessary for the ASH 26 E running at 6900 rpm. Except for the fan problem, there have been no other general problems for the propulsion system. I have had no problems at all in 4 years and 45 hours of engine operation, no spark plug changes, not even a carburetor tuning between operations from sealevel at 40 deg. F to 4000' msl at 108 deg. F, and density altitudes to 9500'. There are likely several reasons for this:

- The low-vibration, easy-starting, four-stroke nature of the Wankel design
- The stationary, not just buried, engine installation eliminates wire and fuel line flexing fatigue, and eliminates mating the exhaust pipe to the muffler with each extension of the propeller.
- A single carburetor using fuel without oil in it.

Despite the problems with the fans, after 700 flight hours and 45 engine hours, I believe the promise of this new propulsion system has been achieved.



Eric Greenwell  
taxiis his ASH-  
26E at Minden-  
Tahoe Airport/  
Williams

## Nudging the Envelope

Or How to Create an Emergency

Submitted by Pete Williams

In many ways an emergency potential exists from the moment of throttle application or tow release in a glider. This is part of the environment of soaring. The essence of the matter is allowing the flight above ground altitude to get so low that it prevents entry into a safe landing pattern over an acceptable landing field. This field can be right under the glider or some miles distant. Have you done this and what was the result? Most likely it was an accident, incident, a very squeaky final glide or a low save "never again" situation that sticks in your memory. Here are some real life examples:

1. Pilot A (flying a sustainer engine sailplane) was determined to make it around a contest course in the mountains. He found himself very low (like 200' agl) near the approach end of a relatively smooth hard surfaced 7,000' msl landing field. As he thermaled in zero sink, the wind was slowly pushing the aircraft away from the field. After awhile, it was apparent he could not reach the runway threshold. Luckily, at a very low altitude, he finally managed to climb out after working for 30 minutes. This is a classic example of putting off using the engine near a landing field. There are no penalties imposed in motorglider competition for ultra low saves and it happens to pilots flying both powered and unpowered ships. There are a lot of "what ifs" in situations like this but the fact remains the pilot took risks that could have resulted in an accident or incident.

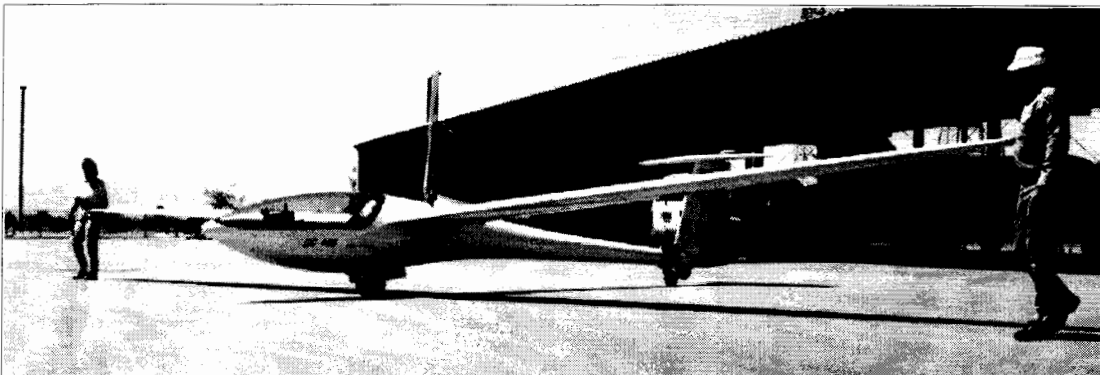
2. Pilot B (flying a self-launching sailplane) was low in the mountains and had a paved landing field about 5 miles ahead. The sink was impressive as he passed through 1,500' agl. As he kept pressing on toward the field it became apparent that the engine would be necessary just to reach the field. So out came the engine at about 1,000' agl. When the starter was pressed, nothing happened! Another try. Nothing! The pilot then pushed over to windmill the prop for a start. Altitude was consumed rapidly as the prop began a slow windmill. Finally, the engine started with the ground less than 500' away. It was later determined that a spade connector to the starter relay switch had come loose. Again, we have a situation of delaying using the engine until a very low altitude is reached. Most handbooks specify using the engine when the altitude above the ground is 2,000'. This allows the pilot to windmill the prop in case the starter or something else fails. It appears that pilots delay starting in hope lift may be contacted. The above situation occurred during a Safari flight, not a record or contest attempt.

3. Pilot C (flying a self-launching sailplane) was low in the mountain valley. It was an extremely hot day and the lift was marginal with tops of the thermals about 3,000 agl. While at about 2,000' msl, he passed over a small dry lake bed. Continuing on, he noted a narrow private landing strip in an orchard. It became evident the engine would be necessary as the aircraft's altitude approached 1,000' agl. Out comes the engine and the prop never moved upon pressing the starter button. He then attempted a windmill start, the prop never budged. The pilot began a turn back toward the private landing strip but was advised by another airborne sailplane pilot that it was not a suitable place to land. Pilot C now tried to retract his engine but it would not move. He was now over a lava boulder field and drifting downwind toward the dry lake bed some about 2 miles distant. An emergency was in progress as the L/D caused by the extended engine was less than 12 to 1. The pilot then used the emergency retraction system and succeeded in stowing the engine, restoring the L/D and making a landing on the dry lake bed. Investigation revealed the starter ring gear had jammed and locked on the flywheel. His mistake? Waiting too long and being too low when extracting the engine. His other mistake was not making sure the starter worm gear was properly lubricated.

4. Pilot D had just purchased a used retractable engine sailplane and was low over a mountain range and not high enough to make his home soaring site. No problem, he thought, just extract and use the engine. Upon pressing the starter, nothing happened. He then remembered a windmill start was possible and pushed over to get 90kts. With the ground coming up fast, the engine did start and he was able to return and land. This is a classic case of believing the engine will always start and not being totally prepared in case it does not.

5. Pilot E (flying a self-launching sailplane) was on a contest task in wave conditions. He had been at high altitude for some time and was in the process of selecting and flying Post turnpoints. On one Post leg, he encountered heavy sink and delayed extracting the engine until at a very low altitude. During a landing attempt the engine finally began to run just as the sailplane touched down in a mining tailings area. The aircraft suffered significant damage and the pilot was injured.

There are many other cases, some involving significant damage in landing with the engine dead and extracted. The point is pilots flying a powered sailplane (including yours truly) must continue to discipline themselves to set a safe altitude above the ground for engine extraction and stick with it. Completing the task, record attempt or fun flight is secondary to safely flying the aircraft. Do you recall the last time you nudged the safety envelope?



Pete and Charm Williams roll out the DG-400 for another flight from Glendale Airport, AZ/ Haas photo