Auxiliary-powered Sailplane Association

Published Bi-Monthly by ASA Inc. Stan Nelson, President Bruce Templeton, Vice President Issue #59 Volume IX

NOVEMBER DECEMBER 1997 NEWSLETTER

Pete Williams with his DG-800B in Minden, Nevada

One of the most magnificent soaring sights in the world is available to soaring pilots right here in the United States. Absolutely magnificent soaring conditions prevail twelve months out of the year at the Douglas County Airport in Minden, Nevada making this a destination many pilots add to their intinerary yearly. Wave flight conditions are more frequent in the fall, winter and spring and distance flight conditions are more prevalent in the spring, summer and fall. This area also has one of the largest contingents of aux-powered ships in the world where pilots can see the ships and perhaps talk to their owners first hand about performance, handling and other features. Some of the auxiliary-powered ships in the area are:

Two DG-400's (Hermut Kohler & Ludmilla Zweifel)
Two DG-800's B &AB (Al Martini & Pete Williams)
One Nimbus 3DM (Al Martini)
Two Nimbus 4DM's (Bill Ivans & Karl Abhau)
Two Ventus CM's (Ingrid Kohler & Karl Abhau)
One Ventus 2CM (Manfred Reigel & Bob Hupe)
One Pik-20E (Wayne Martin)
One DG—500M (Tupper Robinson)

At Air Sailing :
One DG-800 (David Volkmann)

At Stead Airport/Reno:
One Nimbus 3DM (Carl Herold)
One DG-800A (Ken Seymore)

If you're in the market for a self-launcher or would like to do comparison shopping it would be advantageous to see first hand the different ships available and their attributes and their limitations.

You can get a checkout in an auxiliary-powered sailplane through several of the glider operations in the immediate area. If you provide a two place glider, Soar Minden, 702-782-7627, located at the Minden/Tahoe Airport, formally the Douglas County Airport, will provide training. At High Country Soaring, 702-782-4944, also at the Minden/Tahoe Airport, you'll find a DG-500M in which you can receive training. Sierra Soaring Adventures, 805-270-0788, while not based in the Minden area, caters to the aux-powered enthusiast who would like cross country training, aux-powered checkouts, and biannual flight reviews.

Many regional and national contests have been conducted at Minden including standard, 15 meter, open, sports and auxiliry-powered classes. Many records have been set for altitude, speed and distance. Definitely a five star site.

NOTE FROM THE PRESIDENT

As the 1997 soaring season comes to an end it is time to reflect on some of the great soaring experiences I had this past year. In the fall of 1996 I sold my Ventus CM which I had flown for six years. The CM took me through adventures in France, Florida, Texas, New Mexico and Nevada. Sixty miles final glide, 12 knot lift, sea breeze fronts, horrendous sink, bone jarring turbulence, rain, snow and cross winds. The ship handled all this with grace and aplomb. These Magnificent ships designed and built by the world's finest aerodynamicists, engineers and craftsmen are truly greater than the sum of their parts.

In November 1996 I purchased a used ASH-25E. I had previously flown an ASH-25 and had marveled at its handling and performance. My first flights in the ship were made in Winter Haven, Florida. It soon became apparent that this would be a new learning experience for me. The ship weighs almost twice as much as my Ventus CM, empty about 1225 pounds and maximum gross weight 1654 pounds. I took a high tow on the first several flights and explored the envelope. Its nice to have three people available to assemble, although with a single man rig two people can manage. Two people can move the ship on level paved ramp or taxiways. The ship is very controllable and docile on inital tow and climb. Rolling in and out of turns and changing thermalling circles happens a little slower than the 15-18 meter ships. I was surprised as how much bank angle the ship likes during thermalling. Once in straight flight it is quickly apparent that you are not coming down very fast. If you slow it up to 60 knots or less you are looking at 100 feet per minute or less descent rate. Cross country flying is a whole new ball game. It takes practice, training, and discipline to extract the maximum performance the ship has to offer. I next flew the ship in the Senior Soaring Championship in Clermont, Florida in March 1997. It was interesting flying the ship with many 15 meter and standard class ships on fairly short tasks in fairly weak conditions. I was able to take friends in the back seat which was a new experience for me and great fun. From this contest I have learned that the great distance in performance between an open class ship and 15 meter or standard class ships does not immediately become apparent in scratchy conditions with narrow thermals and low cloud bases

Later in June, weak conditions would not be a problem. Arriving in Taos, New Mexico, in early June with a group of pilots from Texas I had the opportunity to fly the mountains in this ship for the first time. We operated from Taos airport which is 7100 feet above sea level and 75 feet wide. The Grumman Ag-Cat towed us up to 9200 feet in no time. Launches were made about noon and soon we were in 600-700 fpm lift. The mountains are about six miles east of the airport where the north-south oriented range goes up to almost 14,000. The Taos Ski Valley is nestled at 9000 feet in the shadow of Wheeler Peak about 15 miles east of the airport. Once over the mountains and cruising north between 15,500 and 17,500, Colorado is only minutes away. Cruising on the Sange de Cristos into Colorado you pass Alamosa, Blanca Peak, the Great Sand Dunes National Park, West Cliff and Salida. I took a friend for a ride who had never been in a glider and who had hiked and fished many of the trails and lakes of the Sangre de Cristos. Of course he did not know what to expect and kept repeating "unbelievable" during the flight. We deviated to fly over the lakes and trails he had fished and hiked on. I'm sure that friends hearing him tell the story of the flight have had their imaginations kindled trying to picture in their minds what it must be like. My son, himself a soaring pilot, flew from Germany to spend a week in Taos to experience mountain flying. Although he had flown at Estreella taking aerobatic instruction from Las Horvarth, he had not flown extended cross country in the mountains. It was a thrill for both of us to fly over such beautiful terrain. There is no doubt that the second seat will bring fascination and amazement to the initiated as well as the uninitiated.

On to Minden to fly in the 1997 Open Class Nationals. A national contest does a good job of seperating the 'men from the boys'. Skill and cunning seems to work every time. The level of competence demonstrated by world class pilots in open class ships can be demoralizing to the newcomer. On strong days, the pilots flying 17 and 18 meter ships gave the big boys a run for their money. and in one case, Rick Walters in a Ventus 17.6 turned the fastest speed of 100 mph on a non wave day flight to Winnemucca and return. Fortunes change after each day's scores and a little bit of luck now and then seems to help. Although the same guys seem to have the most of the good luck. We flew tasks up to 360 miles in length and Post Tasks around an ARSA that confused some of the best. If your brain is not in gear, the best stick and rudder job won't pull it off. I think it was Moffat that said something to effect of,"you win by not losing'. If you count up all the stupid mistakes you make flying a contest they probably amount to five hundred points-even the leaders suffer from this malady. Eight of the ten days were contest days. On one day we flew the Sierra's south to Independence, back up to the Whites to Basalt and return. My goal for next year, reduce the bad decisions and fly faster. That'll work.

WINTER HAVEN SOARING PILOTS
R. PERKINS, D. POLLARD, G. WOTEN, E. ESTRADA, S. FRANKLIN and S. NELSON

WALTER BINDER

Walter Binder visited Minden, Nevada for a week in August 1997 to install Technical Bulletins in the engines of Kark Abhau's and Bill Ivan's Nimbus-4DMs. At that time I was able to interview him and learned the following:

The fitting of two-stroke retractable engines into modern sailplanes has primarily been the work of Walter Binder of Ostheim, Germany. In 1974 Binder designed and installed his first retractable engine concept in his personal ASW-15 using a 30hp Wankel engine. His first installation in a factory production sailplane was a Glaser-Dirk's DG-400 in 1980. The highly successful retractable DG-400 led to the establishment of Binder Flugmotorenbau which is recognized by LBA as an approved company licensed to fit engines into sailplanes under the provisions of JAR-22. Binder installations, including sustainer and self-launching power plants, bring all aspects of engine-airframe interface together including the retraction system, the cooling system, propeller design and the exhaust system. Binder says the engineering, installation and the test time required to fit an engine into a sailplane is two years.

One of the most current engine-airframe installations by Binder is the fitting of the 65 hp liquid cooled Rotax 535C into the ASH-25. This is a buried engine attached to the propeller mast with a muffler that detaches from the exhaust manifold on retraction. The drive belt is tensioned in a fixed position. Designated the ASH-25EB, this powered self-launching Open Class sailplane is one of the most powerful engined versions available today. Submitted by Pete Williams

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Karl Abhau and Walter Binder prepare for a launch in the Nimbus-4DM

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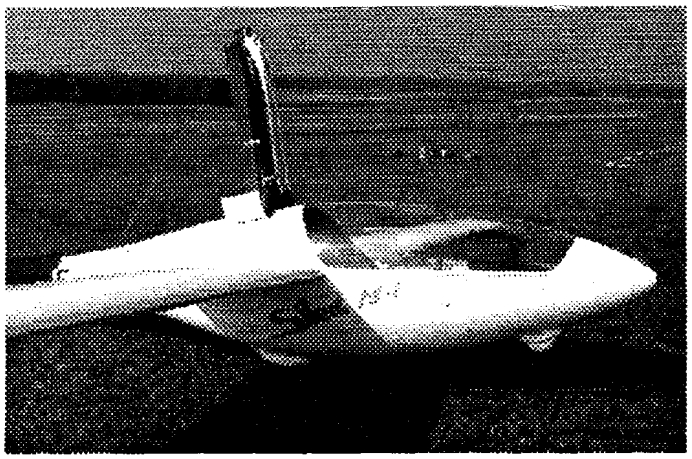

PHOTO BY J. EWALD

AIR ENERGY SILENT AE-1 ELECTRIC POWERED SELF-LAUNCHING SAILPLANE

This battery powered self-launching version of an Italian glider is now undergoing test flights in Germany near Aachen. It has a 12 meter span and uses a 2-blade folding propeller much like the Ventus cM. All of the "motor" system weighs 143 lbs including the 12 NiCad batteries. With a takeoff weight of 661 lbs the AE-1 meets German micro light certification requirements. At a climbing speed of 53mph the AE-1 has reached 1,700-2000' before battery depletion. Climb rate is rapid using a belt driven 6.3 ft propeller. An 18 meter version is planned by Air Energy.

So what does this type of self-launcher mean to the soaring world? Most pilots usually take one launch per flight and the electric launch costs about 1/3 of an aerotow. Battery charging takes about 1/2 hour, so relights are possible by recharging or installing a fresh battery set. Air Energy is now preparing for serial production of 10 ships to test the market. Due to the great demand in Europe for noise abatement, sales of this type of powered ship are a distinct possibility. Other positive aspects are no fuel to mix, no carbs to tune, no ignition system and an absolute minimum of moving parts. Interested persons contact: Air Energy GMBH & Co. KG Rochussstrasse 40, D-52062, Aachen, GERMANY. Tel: 011-49-241-408681' Fax: 011-49-241-403996 This information courtesy of J. Ewald, Moers Germany and Pete Williams.

UPDATE ON: "DG-800B PILOT'S REPORT" September-October 1997 ASA Newsletter. Response by:

Karl-Friedrich Weber, owner DG Flugzeugbau, GmbH

The DG-800B is well on its way to becoming the most popular motorglider in production. For this reason, I would like to update some of the information written by Pete Williams in the ASA Newsletter. DG Fluegzeugbau built five DG-800B motorgliders with Midwest engines very early in the DG-800B production series. Pete bought the first prototype in that early series and I appreciate his evaluation of his DG-800B, serial number 8. The experiences he recounts will undoubtedly be of value to other owners of DG-800B's with Midwest engines.

His article shows clearly how complex a system a modern motorglider with retractable engine is. One could imagine a car in which every time it rolled down hill, the engine was uncoupled, stowed in the trunk, and brought out again when it was needed.

However, the manufacturers now have the technical knowledge well in hand for such devices even if every prototype at first requires a lot of improvements. An example is the motor that was built into Pete's glider. Unfortunately it didn't turn out to be usable and had to be replaced with a completely different motor made by SOLO in Stuttgart. The other points made about design details are certainly relevant to Pete's prototype and to the four other motorgliders of that type. But they are much less relevant to the 800B motorglider serial #126 with the SOLO engine now being built.

It might interest the readers to know how we, as manufacturers, went to the problem of reliability. The first glider with a SOLO motor was run for 50 hours and , as would be expected, many problems showed up that required design changes. After these were accomplished, the permission to conduct extended testing was given in the summer of 1996. Soon after the delivery of a number of gliders, winter started and then suddenly in spring, dozens of "test pilots" flew their DG-800B's. As owner of the firm, I was one of the first.

I am not in the least bit embarrassed to admit that many more problems became clear that had not shown up in our initial testing. That meant more changes were necessary in the design and also (at great expense) in the gliders already in the hands of our customers.

I have given the design and technical people a simple directive: "It must not happen that something on a new DG-800 fails. If something, in fact, does go kaput then it is due to a design problem that we have to change."

In order to keep an overview, we collected into a list all the fixes which our chief designer, Wilhelm Dirks, had carried out. This became known as "Wilhelm's List" and had 95 points. This is not to say that the first DG-800B with a SOLO engine was a basket case requiring 95 major changes to make it fly! Many of the changes were minor ones having to do with pilot comfort and cockpit ergonomics. Some of the changes were the result of repeated redesigns to fix a single problem when the first idea proved unsatisfactory. The many changes made in the DG-800B since May of 1997 were reactions to customer feedback.

And now we can really say that practically no new points are being added to Wilhelm's List and that the design is now mature. Naturally, the aircraft is quite different than it was and has become much more reliable. Its similarity to the early Midwest-powered prototype can be seen only in the fuselage and wings.

Even with the difficulties Pete has encountered in his early DG-800B, he was able to write the following enthusiastic praise of his glider.

> 'I have now 16 hours and 5 flights in it. The engine runs very smoothly and the climb rate is the fastest at our field. This is truly a "super DG-400" and the best self-launcher on the market. ...thanks (to) all of you at DG for your efforts in relation to DG-800B #8...'
>
> (Quoted from: DG Website)

There is one point in which I whole-heartedly agree with Pete: No matter what aircraft you fly, you should always do a thorough pre-flight check. And you should always fly in such a way that you will not get into any difficulty if at any moment there should be a technical malfunction.

With this in mind, I wish you all: "Happy Landings"

Karl-Friedrich Weber

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e-mail: k-f-weber@t-online.de
and
dg-flugzeugbau@t-online.de

Choucas Kits Now Available

The Choucas is a two-place, side-by-side flying wing motor glider designed in France by Claude Noin. Span is 14.35 meters (47.08 ft.), and the empty weight is 260kg (575.3 lbs.). Gross is 450kg. (992.25 lbs.). Powered by a 50 h.p. Rotax 503 2V, max speed is 170km/h (105.63 mph). Cruise at 75% is 130km/h (80.78 mph) and the stall occurs at 37.28 mph. The glide ratio is 22:1 at 52.81 mph.

The Choucas airframe is of mixed construction. The fuselage and landing gear are molded carbon fiber, and the two-piece wings have carbon spars, a birch plywood leading edge, foam core/ fiberglass ribs and fabric covering aft of the spar. The panoramic windshield is made of Lexan. The limit load is +8 and –4 G's

Designer Claude Noin is seeking a U.S. sales agent who might be interested in buying a product license. For info, contact:

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Washington State Soaring

There is a glider club in Richland, WA, but not specifically a motorglider club. It includes five self-launchers: a PIK-20E and a Nelson Hummingbird (Bob Moore), two DG 400's (Rudy Allemann and Tom Seim), and an ASH 26E (Eric Greenwell). In addition, there are two "touring" style motorgliders: a Taifun 17 (Jim Leedy) and a Super Xiamango (Bing Manawadu).

Bob has promoted motorgliders the longest with his PIK, which he bought new. It is now "old enough to vote", but still keeps Bob very active in Northwest soaring. This has included many contests and record flights over the 18 years he's owned it. He also owns a two seat Nelson Hummingbird, a 1950's design very advanced for it's time. It's similar to a 2-32 but with a fully retracting engine.

Rudy got his DG-400 when he retired about 5 years ago, replacing an ASW 20. It flies a lot of cross-country miles in the Northwest, with occassional trips to Golden, B.C., and Sun Valley, Id.

Eric's ASH 26E arrived in March '95. Since then, he's made a number of successful state record attempts (it's not too hard to beat a PIK 20E with a 50:1 glider!) and taken it to contests in Minden and Hobbs.

Tom's DG-400 is the newest addition to the self-launchers here, as he bought it in June to replace his ASW 19. Tow pilots are hard to find during the week here, so Tom is looking forward to doing a lot more of weekday soaring. His self-employment about a mile from the airport, plus the motor, will make "getting away" much easier!

Jim has two or three years in gliders and still owns half of a Blantik L33 Solo, but flies his Taifun most of the time. He frequently uses the relatively high power-on cruise speed to get to good soaring, particularly wave soaring in the Cascade Mountains. That is impractical to reach with a self-launcher's lower speed and limited fuel.

Bing only has little experience in gliders, but plenty of power time, so he is just beginning to expand his glider abilities while taking advantage of the Xiamango's good airplane qualities.

The Columbia Basin (mostly the east side of Washington State) has excellent soaring conditions with lots of fields and airports, and the mountains that surround it provide wonderful opportunities. Locally, we have thermal soaring March through September, with wave predominating during the winter. Slope soaring is possible anytime of year on the nearby hills. The Richland airport has two wide paved runways and taxiways which, with the light traffic, make it ideal to operate from

DG-505MB

The sailplane is the latest version of the DG-500 M. The powereplant was designed using the concept of the DG-800B, but with a more powerful engine and a larger propeller (1.58m dia.). With the DG-505MB we are offering a two seater self launcher with low noise emission similar to the DG-800B.

THE ENGINE

The engine SOLO 2625 was developed by the German company SOLO especially for self launching sailplanes with retractable powereplant. Its main features are low weight, compact dimensions, dual ignition and a long lifetime. A TBO of at least 400 hours running time is projected without any limitation in years of operation. The version used in the DG a power of 64 hp.

ENVIRONMENTALLY FRIENDLY

It is advantageous that the engine produces the required power of only 6500 RPM. With the toothed belt reduction of 3:1 the propeller turns at only 2170 RPM. The low propeller and engine speed produce low noise emission. Also the water cooling will cut off the emission of high frequencies out of the combustion chambers. Engine and Exhaust system are located inside the fuselage, so the fuselage acts as a noise damping device and a large muffler can be installed as well.

SAFETY

DG sailplanes provide a high level of pilot safety features. We are involved in safety related research programs. The latest findings from these programs are adopted as soon as possible into series production. The powerful engine allows for a short take off roll and high climb rate. This is important especially for short runways in high altitudes. Further safety features are the dual ignition, the automatic control hook ups, the splendid visibility, the safety cockpit, the powerful airbrakes and the high landing gear with large tyre. All controls including the engine are operated with the left hand, which allows the right hand to remain on the control stick.Controls for all important functions including the engine are installed in both the cockpits.

COMFORT AND INDEPENDENCE

Thanks to its steerable nosewheel and the wingtip wheels the DG-505MB is fully maneuverable on the ground without the need for a helper. Superior gliding performance, fast roll rates, excellent visibility and comfortable seating will make flying the DG-505MB a thrilling experience of pure pleasure. Due to the SOLO 2625 engine the DG-505MB is expected to be the two-seater self-launcher with the shortest take off roll, highest climb rates and the lowest noise emission.

NEEDED: A TWO-PLACE 18 METER SLS

OPINION BY BOB MOORE

The 18 Meter Class has now been accepted as an FAI Class, and should become very popular, particularly for Aux-powered Sailplanes-where the increased span affords an advantageously lower span loading and all-round improved performance (as compared to current 15-meter SLS's). The DG 800 and the ASH 26E are already exquisite examples of what is possible, and others will doubtless follow. But, there is a "crying need" in my opinion, for some two-place 18-meter machines-equipped, of course, for self-launch. Hopefully they will soon appear.

The motorized ASW-22, the DG-500M, and the big Nimbus 3DM are superb aircraft- for those who want to compete in the Open Class, or to set world records. But, apart from cost, their utility is severely limited so far as most of us are concerned. They are just to big. They have outgrown most airports! Dale Bush, who flies and competes in a big (unpowered) Nimbus has said that when he launches from his central Oregon base, "there is not another airport within 100 miles on which I can land!" Most soaring, at least here in the arid western United States, is done from paved runways that are simply not wide enough. The exceptions are a few municipal airports and surviving WW11 training fields (such as the airport at Minden, Nevada). Most of our soaring is done from runways seldom over 75 feet wide. The Big Birds would overhang the runway lights. And, they would be unable to taxi on taxi ways that are seldom over 35 or 40 feet wide. An 18-meter SLS could handle most of these.

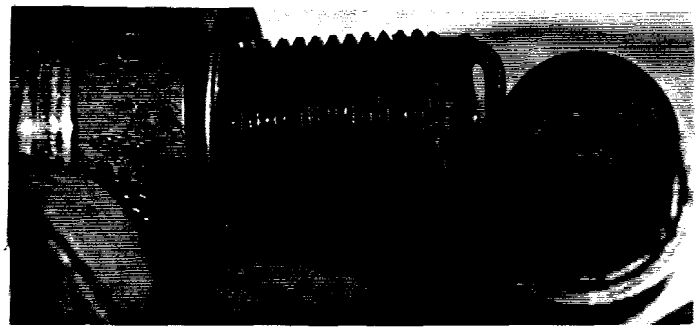
I operate a PIK20E and an all-metal, two place Nelson Hummingbird, a self launching sailplane that was designed almost 50 years ago and which was then way ahead of its time (SOARING, Dec. 1995, p. 35-38). My Hummingbird was Ted Nelson's personal aircraft and is the last one flying. It handles and soars beautifully, and has a recently measured L/D slightly over 30 (versus the published 25 that the factory obtained for the wooden prototype). But, it is beginnng to show its age and the engine is no longer as reliable as one might wish. The PIK to has logged over 2300 hours, is now "old enough to vote", and is beginning to have periodic problems. So, I would very much like to replace both aircraft with a modern two-seater SLS an aircraft in which I could introduce friends into the joys and Beauties of soaring, and which I could also fly solo much as I do the PIK. Flown solo, one could also fill the rear cockpit with lots of gear and go touring. There would be room for camping equipment, a can in which to mix fuel, and even a folding bicycle! But nothing is currently available that could operate from my Richland, Washington airport home base. The long-span birds are out, and I want more soaring performance than the touring ships available now provide.

The Grob 103SL seemed a possibility, but it has some drawbacks that eliminate it from consideration (apart from the fact it is currently not in production). Owners report that its climb rate- even near sea level-is only 200 to 250 fpm (a less-then-desired 300 to 350 for the Hummingbird, and the much better 500 to 700 for the PIK, DG-400, and ASH26E). I like to have some air under me when I cross the end of the runway-just in case! The quicker one can get away from the ground the better. Another serious drawback of the 103SL is that its "steerable" nose wheel only turns a few degrees in either direction-just enough to keep going straight on takeoff, but not to taxi out to the runway. It requires ground handling like a "pure" sailplane. A practical SLS should be able to taxi around corners, i.e. be able to turn around its wingtip. (The venerable Hummingbird can do this, and the PIK20E, DG-400, and ASH26E all taxi well).

It would be so nice if the manufacturers would bring out some two-place 18-meter SLS designs that would feature tandem seating, ability to taxi and takeoff without ground support, a good rate of climb under power, pleasant handling, affordable price, and "reasonable" performance. Some might insist on performance that would allow them to compete head-to-head in the 18-Meter Class. I would be content with an L/D somewhere in the mid or upper thirties, a fixed main wheel, and no flaps. I support that such a aircraft would also appeal to many other pilots and to clubs and schools. What do the members of ASA think or want? Is there a demand for either a "super" 18-meter two place SLS or for a "club" version, or both? Please make your wishes known.

SPARK PLUG/ FUEL/ OIL PERFORMANCE

Experience: Spark plug performance remained nominal during the 5 years they were installed. RPM drops last flight before removal 180-220 on each ignition circuit @ 3000 RPM check speed. Approximately 240/250 cycles were accumulated in 34.75 hours with 15 ¾ full power climb and 19 hours ground operation-taxi out or take off restart and return to ramp after landing. Annual inspection and a planned weeks' flying at Taos (SKX) elevation 7096' prompted the plug change.



As can be seen from the enclosed photo the plug bases, core nose, and nose cavity were lightly covered with a chocolate colored carbon-there was no lead accumulation and each plug had evenly burned .003 of electrode center. No adverse effect of LL 100 has been noted in any of the fuel system components during this 5 year time frame.At the top of each climb the engine was-is-cooled to 160 degrees C before shut down and retraction. During the ""off season" the engine is started and run 5 to 6 minutes @ 3000 RPM to 140 degrees C and shut down approximately every 4 to 5 weeks. If this is done without fitting on the wings EXTREME CARE should be exercised!

Stephan Drane N 400 GG

ASA NEWSLETTER
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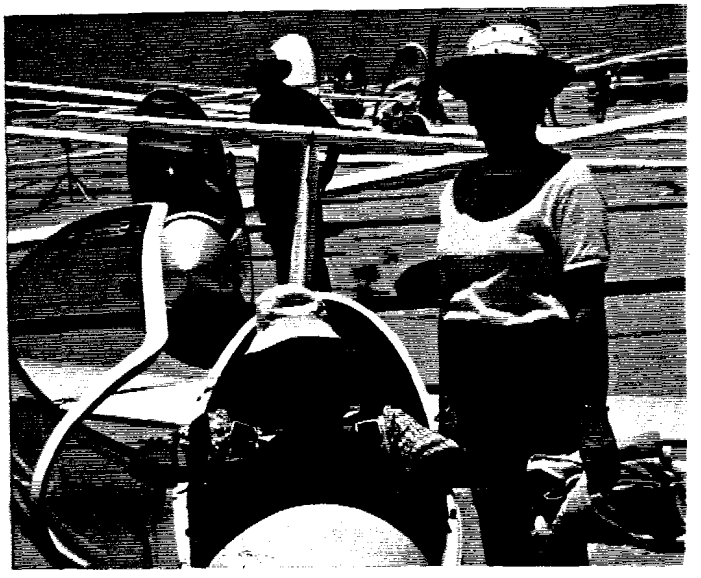

Russell and Barbara Perkins with their Ventus CM