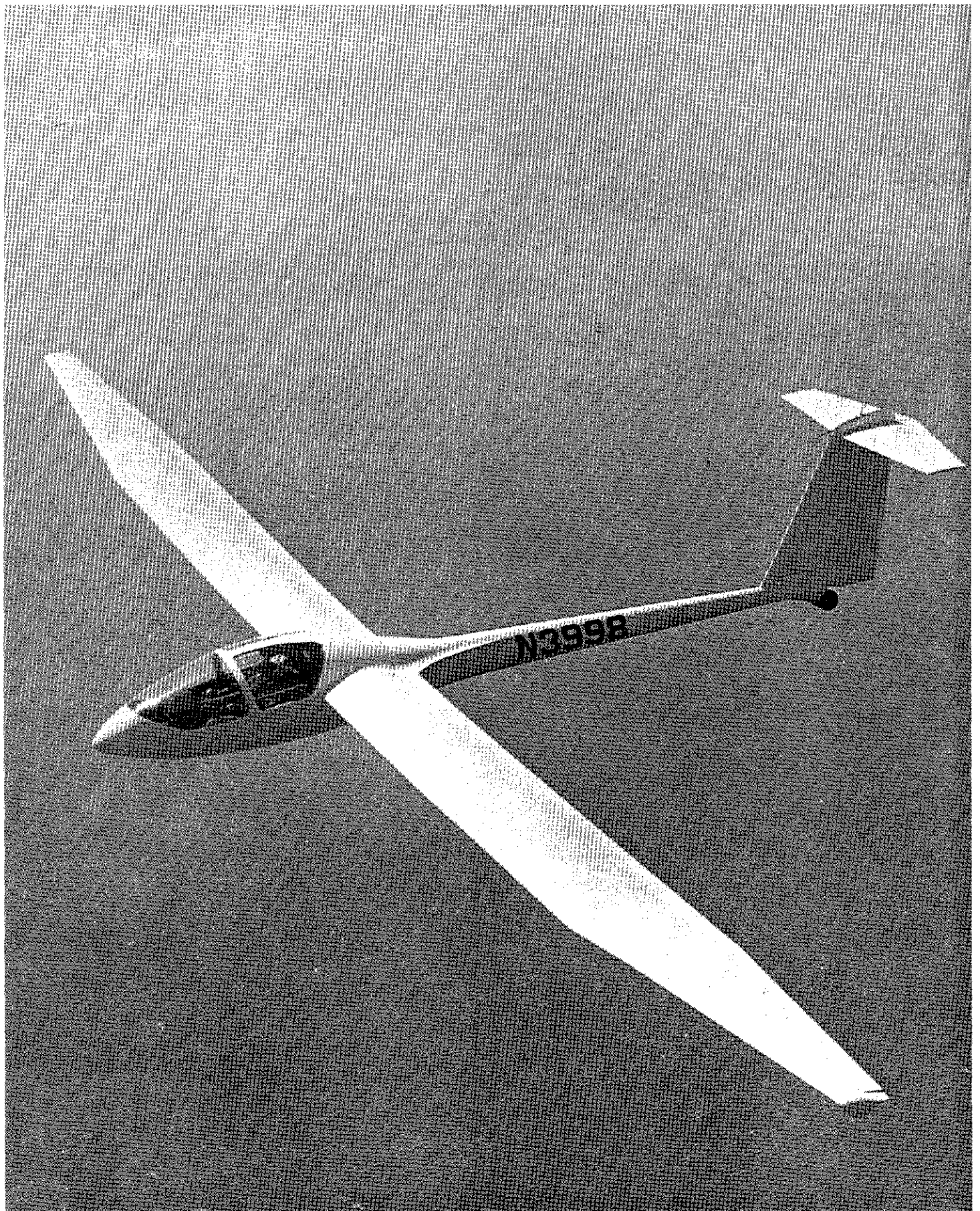


MOTORGLIDING

APRIL 1974
50 CENTS



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SA SPORT AVIATION, INC.

MOTORGLIDING

Donald P. Monroe, Editor

Vol. 4, No. 4

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FOREIGN SCENE

by S. O. Jenko, Dipl. Ing. ETH-AMTECH SERVICES

The December 1973 Foreign Scene carried an account of the Swiss jet-powered sailplane *Prometheus I* which apparently was a non-commercial, private venture. But not the only one.

The January 1974 issue of the French *Aviasport* has an article with technical description of a similar undertaking which might be of interest to many readers. The following account is a condensed translation of this article.

Return of *Sylphe*

The builder is Charles Bezard, a pastry baker from Neuilly (a suburb of Paris) who is quite known in French amateur-builders movement; he is also a "kerosene torch" aficionado.

His first work was the restoration of a two-place SIPA-200 *Minijet* which was carried out during a three-year period and several thousand hours of work. His new project, the jet-powered sailplane *Sylphe*, was given the same careful attention. First, he acquired a Fouga *Sylphe* which was modified into a pure

sailplane by its previous owner. Then, he restored it to its original jet-powered version in the usual fashion, known to many old and new homebuilders.

Since he had only a small "workshop" of about 9 by 15 feet, cramped with a few jet engines and their parts, the wing panels and fuselage, each over 18 feet long, protruded through a window into the courtyard. Then an enclosure was constructed for protection over the exposed parts. In order to provide working room the fuselage was pushed in the stairway. To work under such conditions certainly required considerate next-door-apartment dwellers as well as an understanding custodian.

In addition there was the never-ending task of trying to find the missing parts, including the landing gear, engine controls, etc; also paper work. Some of the parts could not be located and had to be made.

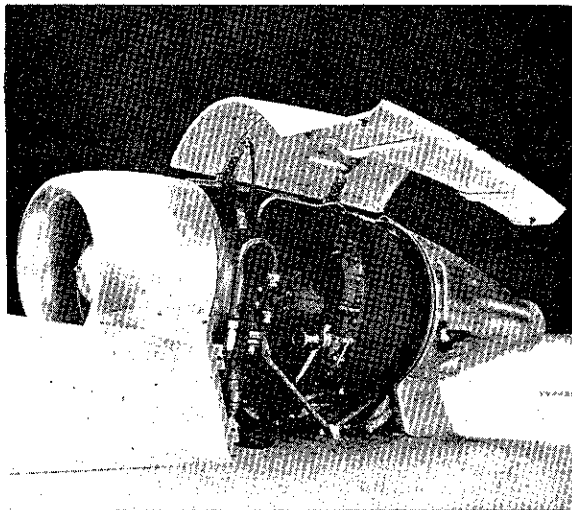
Then, the jet engine "Pimene" was located (at one time it served as a propulsion unit on a hydroplane) and rebuilt with the help of the Turbomeca. Finally, all the bird's feathers were restored and the maiden flight took place again—without any difficulties. Care had to be taken of progressive throttle manipu-



lation during takeoff and relighting (seven seconds for moving the throttle from closed to full open position (in order to avoid compressor surging and overheating the turbine in a matter of a few seconds).

However, this is not the end of Charles Bezar's efforts! He is already planning to rebuild another *Sylphe*—this time the fuselage will be stretched to add another seat (tandem) and to install one jet engine "Palas" of 352 pounds of thrust (about the same physical size as Pimene). In addition, a center section of about 6.5 feet will be added to increase the wing area. He has already located for this purpose the airframe of another *Sylphe*, although not in such good condition as the first one, but usable.

Since his aerodynamic and structural design capabilities are rather insufficient for this ambitious project he obtained the services of three (!) engineers who are active in French homebuilt-design circles. In spite of all the difficulties and enormous work required, Charles Bezar is one of those who pursue their goals until they are realized—in-



The nacelle of the jet engine Turbomeca Pimene features large doors assuring good access.

stead of dreaming about, like so many others do.

Sylphe--Technical Description

Sylphe CM -8 R-13 is a "motorized" version of the aerobatic CM-8-13 designed by engineer Castello. First flight was made in June 1949. In all, only six were produced.

Sylphe is a single-seater, made of wood with exception of metal ailerons and elevators.

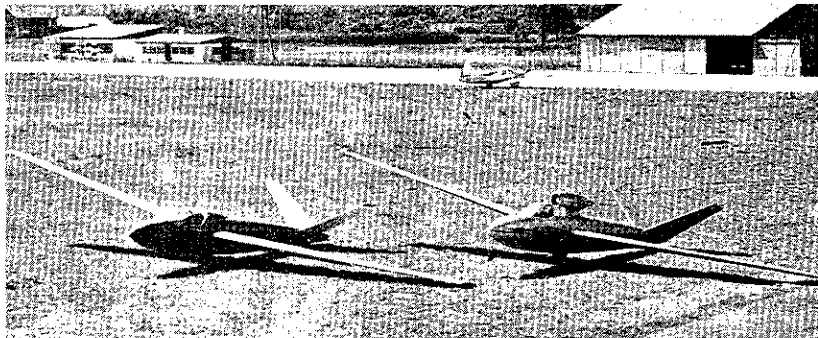
Wings are tapered with airfoils NACA 23014/23012; slotted ailerons and flaps with stops at 17° and 35°; dive brakes. The wing consists of two panels having a main spar and a stressed skin.

Monocoque fuselage has an oval cross-section. The landing gear consists of a fixed but sprung main wheel with a disc brake and a steerable nose wheel.

The V-tail has a 110° dihedral.

Propulsion unit is Turbomeca "Pimene-101" developing 220 pounds of thrust on takeoff. The fuel tank contains 47.5 gallons of kerosene, the oil tank has a capacity of 0.53 gallon.

Wing span	42.6	ft (13m)
Wing area	140	sq ft
Aspect ratio	13	
Length	22	ft
Empty weight	945	lb
Gross weight	1430	lb
Wing loading	10.2	psf
Without fuel	8.2	
Takeoff speed	53	mph
Landing speed	47	mph
Cruising speed	124	mph
Ceiling	36,000	ft
Best glide ratio	18.6	
at	65	mph
Min. sinking speed	4.75	ft/sec
at	53	mph
Initial rate of climb	394	fpm
at	93	mph
Fuel consumption:		
at cruising speed	15.8	gph



Restored *Sylphe* of Charles Bezar (right) and the modified, pure sailplane version of F. Noin.

THE CAPRONI CAPER

by B. S. Smith

Because I've been concerned about the potential implied conflict of interest on what I might write for this magazine concerning my involvement with the Caproni A-21J, in light of the fact that I am also publications chairman for SSA, I have hesitated to submit anything to editor Don Monroe. However, knowing how difficult it has been for him to acquire material, I decided to go ahead.

Parenthetically, I emphasize that certainly the availability of articles is Don's toughest problem and urge *all* of you to contribute what you can to make *Motorgliding* viable. We are fortunate to have those who have submitted material in the past on a fairly regular basis. But, the reason we're behind schedule is simply lack of material. Someone has got to write it, and that's each of us. Although the numbers of subscribers to *Motorgliding* are small as measured on the big scale of *Readers' Digest*, there exists herein the opportunity to communicate our personal plans, dreams and experiences that have stimulated the interest of the ever-growing readership of *Motorgliding*.

Probably the Caproni A-21J is somewhat beyond the everyday financial means of a lot of us. Yet, it has an interest for all, just as I, a non-competition pilot, enjoy reading about competition. So, if there is a continuing interest, we'll try to provide commentary occasionally regarding the A-21J. Just in case some readers aren't familiar with the project, I'll give a brief description first.

Designed by Carlo Ferrarin and Livio Sonzio for the Caproni Aviation Company of Milan, Italy, the objective was a very high performance sailplane built around a jet engine for self-launching. Inclusion or omission of the jet engine was not to result in any significant performance deterioration of either version. That this has been accomplished is well borne out by the sailplane in that it holds four of the eight existing world multi-place glider records. It is a multi-place ship, two seats side-by-side, whose appearance is such that we have difficulty convincing people that it is indeed an all-metal ship. Those smooth-

ly-contoured wings are not fiberglass. A non-structural aerodynamic pod of fiberglass is put to best use contoured as a shell around the aluminum alloy fuselage forming the cockpit structure housing the two pilot seats. First flight of the A-21 sailplane was in August 1970 and first flight of the A-21J jet/sailplane was in January 1972. The jet engine, which weighs 66 pounds, is the TRS-18 with 200 pounds static thrust. If I can sneak this report past Hugo Taskovich who likes to remain somewhat circumspect about any possible problem areas encountered in putting together an activity, I'll relate some of the humorous aspects to the difficulties of such a project.

Obviously, nothing as complex as a high-performance sailplane married to an advanced technology turbo-jet engine is going to be completely free of any areas of concern. Fortunately, with the A-21J they to date have been what one might term inconsequential as far as necessitating any particular design problems and have mainly been only time-consuming. Thus, I can refer to them in retrospect as the humorous part of our activity.

The first one involved installing the engine in the airframe. You can't install an engine until you have it and did we have trouble getting it! The specially designed engine, drawing upon the experience and technology of similar-sized engines, was manufactured and many hours of test data and time accumulated. Several models were run and one such then shipped from the French production plant in Toulouse to the Caproni factory in Milan for initial installation. Allowing a reasonable amount of time to elapse after notification of shipment, the Caproni factory determined that surely it should have been delivered. Where was it, though? Telegrams, phone calls and letters flew back and forth between Italy, France and the United States. We became most concerned about the delay. It wasn't a matter of being just a few extra days; the days had slipped by and become weeks and the weeks became months. I know it's hard to believe but three months elapsed between shipment and delivery.

If you think customs is difficult, you ought to try mislabeling and see what happens. For that is what happened! The shipping container with the engine and other parts was mixed with other containers and the customs inspector noticed that the weight on the engine container

label didn't match that on the shipping forms. Inadvertently, two container weights had been switched. It took three months to straighten out the various matters. We couldn't send it back to Toulouse for reshipment because Italian customs wouldn't release it, so you can well imagine everyone's frustration over this bureaucratic red-tape foul-up.

Once that ludicrous business was over, things moved along more rapidly. The engine was mounted. We made ready for the first test ground-run of the installed engine prior to first flight. Of course, the engine had been run many times before this, but there is always the excitement of that first run in the ship. But, here was the problem. Probably no foggier days have ever existed in recent times in Milan than when they finally rolled her out for that first run. Everybody stood close because the fog was so dense that those at the wing-tip could hardly see the fuselage. You must remember this is a 67-foot span wing! But, after all the delay, a little fog couldn't deter us.

With the fueling completed and the fire extinguishers manned, the start button was pushed. Hugo's and my cameras were grinding away. It was so dim, late in the mid-winter day, that surely there wouldn't be anything showing on film. It does show, though: a grey, foggy Italian evening suddenly lit by the blue exhaust as the engine started and accelerated. If it had been full daylight, there would have been nothing visual to show that the engine was running! Of course, we were all quite pleased.

Since aircraft noise levels had been receiving much publicity, we were concerned about this particular ship's noise level. I had a sound level meter to take some readings. This had previously been done on an engine test stand at the factory in France which indicated we were well below the FAR Part 36 requirement. I put down my camera to start taking measurements at varying distances, moving away from the plane. By the time I was fifty feet away in the fog, I couldn't see the jet/sailplane and of course the others couldn't see me.

Measurements at greater distances were needed so I kept moving. I didn't have to worry about where I was walking on the airport as far as aircraft traffic was concerned because nobody was flying, including the birds. But I did have

trouble just walking in a straight line, counting the paces. I knew I was getting further away though, because the sound level was slowly dropping on the meter. The fun came after finding myself several hundred feet away. Now, I had to get back and you just couldn't see a darn thing. Further complicating my predicament was that the jet engine was then shut down so I couldn't use increased noise level readings for positioning. In any event, by hollering and listening for returning yells, I managed to stumble back to the gathering by the ship. There was much joviality involved in such antics. Happily, the engine had run beautifully. We patted each other on the back and put it away in the hangar for the night, to do some more ground running in the following days.

The first flights went well. The biggest problem was still the fog—waiting for it to lift. When it got up to a 200-300 foot ceiling, we couldn't stand the suspense any longer so the factory test pilot, Mr. Zanetti, took off for the first flight. He made some swishing passes back and forth across the field, which would have to be labeled, if nothing else, ground-level high-speed passes because there was no other level available; it was just too foggy. He couldn't go beyond the field boundary either, else he'd be lost in the fog. The weather finally improved and the testing continued. Our immediate goal was to ready the ship for TRANSPO '72, the airshow at Dulles airport in Washington, D.C. This really accelerated things for the factory but a suitable amount of flying was accomplished.

The A-21J was not the first Caproni to fly across the Atlantic, but it was the first Caproni with a jet engine to fly across the Atlantic: it came ensconced in a cargo 747. But, getting it out of Italy was almost as hard as getting the engine into Italy had been. The customs man didn't have any listing for a jet sailplane. We asked customs if they had a listing for sailplanes. They said, yes, but this was a sailplane with an engine in it. We asked them if they had a listing for jet engines. They said, yes, but this was a jet engine inside a sailplane. Fifteen minutes later, after removing the engine from the A-21J, we presented to Italian customs a jet engine and a sailplane—separate—and were cleared.

Then, the engine was reinstalled. Bureaucracy moves in strange ways!

More test flights were performed in New York where licensing was accomplished after arrival. Then we had an interesting time ferrying into Dulles. One must remember that TRANSP0 '72 was being put on by the U.S. Government. Therefore, what might be termed typical government restrictions were utilized. One requirement was that absolutely all aircraft arrivals had to be pre-planned, pre-ordained, pre-cleared and timed. No exceptions!

We decided to make an aero-tow entry. Clearance was requested, a time slot allocated and off we went. The take-off point prior to Dulles was Reading, Pennsylvania, by aero-tow. Mr. Zanetti and I were in the A-21J. Everything had been progressing smoothly (except for some very rough turbulence while circumnavigating the New York City TCA). I handled all the radio contacts from the glider, which had 360-channel radio capability, informing the tow pilot on a different frequency and steering him as necessary, using conventional towed-glider technique, until it was time for us to release, when he would switch to tower frequency.

We received entry clearance from Washington approach control, picked out the geographic point they assigned us to report over, were identified by them on radar which tracked us in, told to enter right traffic for runway 1R and then as we entered downwind, to switch to tower. I had explained that we were a glider under tow and would release on downwind to land separately following our towplane. Washington approach said they understood. I switched back to our tow frequency and relayed the information to the tow pilot. I released from tow and we both switched to tower frequency....

That's when the fun began. I've flown into Dulles airport a few times, to say the least, as I'm a pilot for United Air Lines, but this was my first time in a glider. It was no particular concern because, obviously, The FAA had everything set up and all we had to do was follow their instructions! Well, the tow pilot was ahead (naturally) and I heard him call the tower. The tower said: "Who are you?" He responded, told them who he was, that he'd just been switched over by approach control and the tower said: "We don't have any clearance for

one tow plane coming in, go back somewhere else, land and get a clearance and come back later."

The visibility was very good so we could easily see the long line of airplanes coming in for landing. Because I wanted to have every flexibility, I flew downwind at minimum sink at 2500 feet altitude as the tow plane dove down, having his verbal battle with Dulles tower. I then interjected my request to Dulles tower for landing sequence and—no answer. So, I called again—and still no answer. I could hear the tower fine but he wasn't hearing me—or at least he wasn't answering me. I called my tow plane and he acknowledged that he heard me but I was very weak. As we found out later, our battery had been gradually weakening. I had overused the radio on tow on the way down from New York and just at the point of switching frequency from approach to tower, it became so weak that my range was only a few hundred feet to the towplane and that was it! I tried ground control and every other frequency that I could find listed and got no response.

We positioned in an area which would be considered normal for right base for an airplane landing on runway 1R. In the meantime, the towplane ended his argument with the tower by saying, in effect, I don't care what you say, I'm going to come in and land... and he did. No problem, nobody had to go around, he put his Piper *Cub* down on that 11,500-foot long, 150-foot wide runway and taxied off on one of the many high-speed turnoffs, stopped, gathered up his towrope, put it inside and taxied three miles away from his landing spot to where the air show area was located alongside runway 1L. There, he proceeded about his business making arrangements for his return.

In the meantime, I was losing altitude at the rate of about 100 feet per minute, circling, watching a DC-10, 707s and DC-8s which were interspersed with various sized other aircraft coming to the airshow. I eyed the tower for the expected light signal—of unknown color, certainly, in the present situation—but at least if I was going to get a red light I wanted to have them acknowledge that I was there. We circled lower and lower and still nothing from the tower while aircraft continued landing.

Dulles has the usual very wide taxiways associated with airline-type airports, parallel to the runways. I moved

our circling position across the runway, over the taxiway, in fact right directly between the tower and the taxiway and continued circling lower and lower and still nothing. Obviously, a decision had to be made. Noticing that taxiing aircraft coming down the taxiway for take-off had left an opening, we pulled on full spoilers/flaps and made a diving left approach to land on the taxiway parallel to 1R. A Lockheed *Jetstar* was taxiing towards us for takeoff on 1R. His nose seemed to lower slightly as he spied us and abruptly put on his brakes. He was still a half mile away but we were no problem to him. The thoughtful planners of Dulles Airport had provided not only extra wide parallel taxiways and super, super wide runways but super high-speed turnoffs that led from the runway to the taxiway. We cleared the parallel taxiway easily by ending our landing roll on one of the reverse high speed turnoffs and stopped thereupon between the parallel taxiway and the runway.

There was never a word on the radio from the tower advising other aircraft of our position. They never saw us! Incredible! The next thing seemed to be to clear that high-speed turnoff we were on, although there really wasn't all that much traffic. But, to be on the safe side, Zanetti and I jumped out, moved the tail around and pushed the ship back into some pretty tall grass off to the side as we watched some rather bug-eyed pilots of airliners landing alongside. No doubt they were wondering what was going on with two individuals pushing this long-winged, white, sleek bird off into the grass, which enveloped us.

Now, how was I to get over to the airshow area? As mentioned previously, that was quite a distance because Dulles is a big airport. Mr. Zanetti, the Italian factory test pilot, doesn't speak any English and I don't speak much more Italian, so I left him with the glider, saying I'd go get help. A three-mile walk later, I looked and inquired around, trying to find out where we were supposed to tie down. I couldn't find any soaring people or factory engine people, who were supposed to be there waiting for us, to come out and ground tow us back. (I should explain that we had not fueled the ship for this flight, not wanting to carry any extra weight, so we didn't have the opportunity to fire up the engine and taxi in. And, probably couldn't have anyway, now that the battery was so

weak.) In any event, I thought that because of the lack of radio contact, I really ought to let somebody know what this apparition was parked out in the grass. Nobody really seemed to care about someone wandering across the airport; in fact it makes you wonder if the same thing couldn't happen today, even with all the security provisions that exist.

I had a very difficult time finding the right people when suddenly, there was Zanetti! How did he get to the airshow area when I'd left him three miles away with the jet/sailplane? It seems that one of the landing airliners reported seeing him alongside the runway. Someone from the FAA finally went out to investigate! The gentleman, who shall always be a true friend, was the FAA Operations Director for Dulles. He drove out to find out what was going on, and lo and behold, spoke some Italian. (A former navy pilot he was, far more accomplished than this ex-navy pilot.) He brought Mr. Zanetti back, found me, we got some rope, drove back out, tied the A-21J to the rear bumper of the FAA car and began our three-mile trek back to the airshow area.

Well, the rest of Dulles was anticlimactic after that. We charged the battery and showed the ship with flights on a daily basis. There was great interest in it on the part of the many aviation officials there. After the show, the A-21J was returned to Italy for further factory test work.

The final incident to relate herein as a retrospectively humorous element of our operation was one which really had us baffled. It certainly had the potential of being a very serious problem and the best brains of the engine people were put to a test. After some time, the engine, for unexplained reasons, just wouldn't run on occasion. We'd go to start it up and it would start and then immediately shut down. Or, it wouldn't even start. Or, it would run for some period of time—five, ten, twenty minutes, an hour—something like that and then it wouldn't run. Well, maybe we were getting RF interference in the engine electronics. Maybe we needed to shield that, maybe we needed to move the electronics. Maybe the fuel was dirty; maybe we needed to make sure we weren't getting a clogged fuel line.

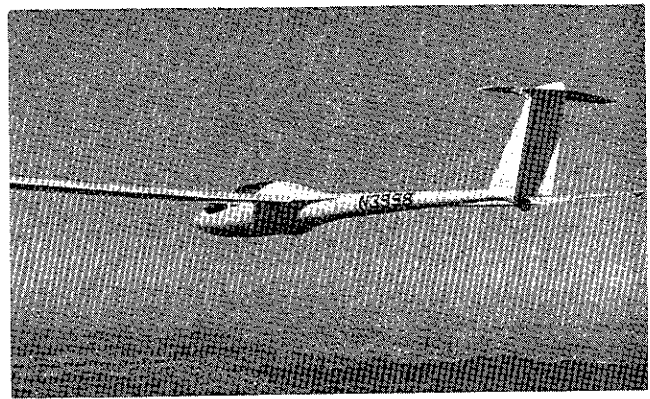
We inspected one filter and found

ample evidence that it obviously was our problem, because the filter was filled with a jelly-like substance. The fuel system is a multiple filtering system and the first filter downstream from the manual tank shutoff valve was the one that had this evidence in it. After cleaning it out, we took special precautions with the fuel. We used a chamois cloth to put all of the fuel through, slow as that is. We cleaned out the fuel tank. We changed that filter and all other filters, we relocated the radio antenna, we moved the electronics, and we pulled our hair.

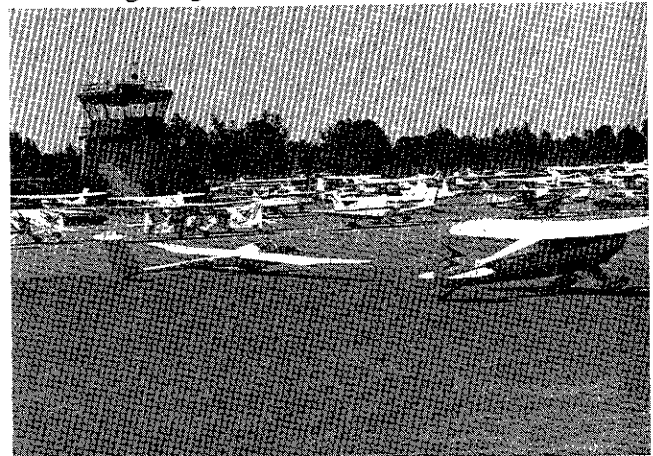
All to no avail. The problem continued. By now the ship was back in the states, in Palo Alto, and all this test work was taking place there. We made flights, inflight shutdowns and relites with no problems after cleaning out the fuel system completely. But eventually the problem would crop up again when, after a start with everything normal, the engine would just shut down. What more could we do—it certainly wasn't satisfactory to have to clean out the fuel system every few hours.

Finally, though, sheepish success. It was noted that one of the internal fuel filters, according to design specs, was supposed to be 50 microns. That size hadn't been manufactured yet by the French firm which supplied such items but one of 10 micron size was available and had been used. It was just too small. Eureka! We got a newly built 30-micron filter, (50 still wasn't available) and our problem was over. What a relief to throw away that chamois. Just pump in the fuel directly from the tanker truck. Now we were really putting some flying in because we didn't have to take 45 minutes refueling each time.

That the engine has proven itself is well-established. It is very reliable and simplicity itself to start—just push a button. Jim Bede is using it in his little ship with great success, also. Engine certification remains as a final barrier to more widespread use. It is a costly process to go through; the proposed FAA motorglider category requirements for engines would certainly be helpful in reducing costs. I'm not holding my breath, though.



Inflight photo of A-21J N3998, city of San Francisco beneath. Engine inlet barely visible beneath wing root; engine exhaust enclosure shows as slight protuberance at bottom of fuselage below trailing edge of wing.



Taxiing view of A-21J at Palo Alto Municipal Airport.

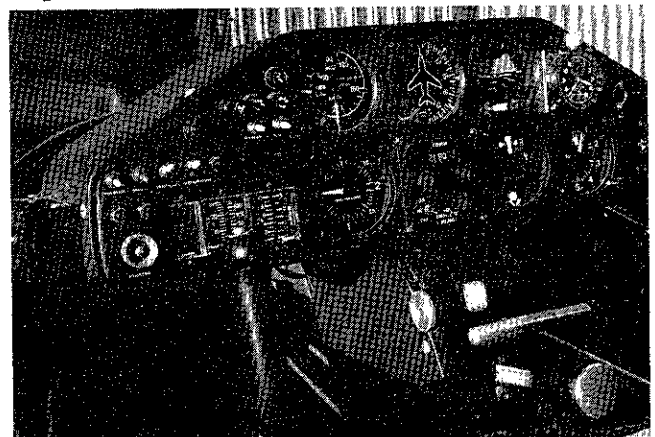


Photo of A-21J instrument panel showing conventional instruments with engine instruments grouped together at lower left of panel. Start button is easily visible at most extreme lower left corner. Central pedestal controls are, from top to bottom; thrust lever (throttle), dual wheel brake (horizontal bar), and elevator trim.

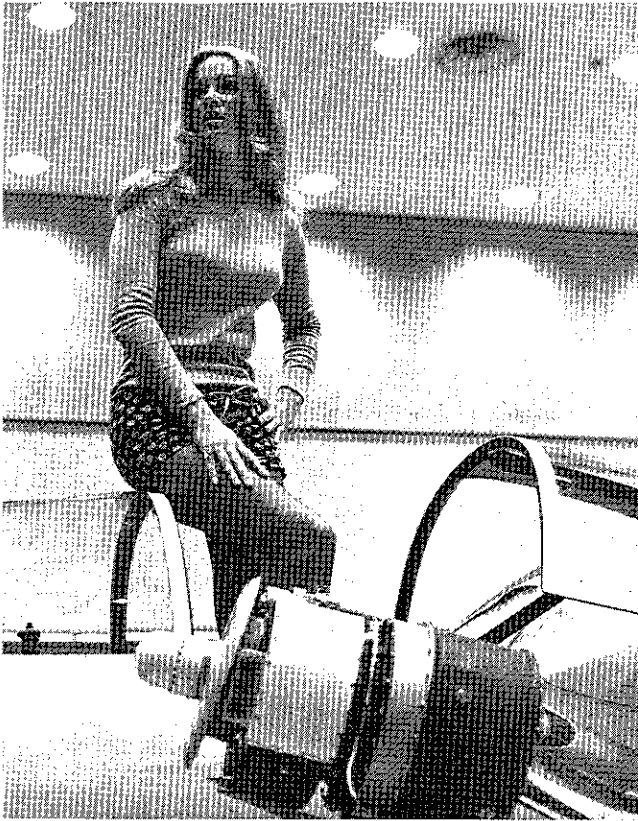
A PEEK AT THE FUTURE

by Walter Buhl

The World Championship Motorsailplane Meet held at Burg Feuerstein, Germany, June 8 to 15 gave clear signals on what motorglider developments to expect in the near future. During the meet new types were demonstrated to the German licensing authorities. The most outstanding sailplane was the motor *Nimbus* which was flown one day in the meet and is important because it is not only a terrific performer, but is so far developed it should no longer be considered experimental.

High performance as a sailplane coupled with adequate climb on power is the trend, but this is more evident in single-seaters than two-seaters so let us look first at the single-seaters. The three best sailplanes were the motor *Nimbus*, a motor *Cirrus* and the SF-27M which won first place in the single-place category. All of these have pylon-mounted motors and propellers which retract completely into the fuselage, giving them as clean a form as the original sailplanes. The motor *Nimbus* and the motor *Cirrus* use the Hirth two-cylinder two-cycle 55-hp engine driving through a short-coupled cog-belt speed reduction. Obermayer who developed the SF-27M had the same engine mounted in his -27M on a direct drive basis. All of these ships had climbs which allowed takeoffs in reasonable distances even on the uphill runway at Burg Feuerstein.

The motor *Nimbus* was built from the regular 20.3-meter *Nimbus II* by the following changes. The pylon-mounted motor and propeller were built into the fuselage behind the main wing spar without modifying the wing attachment system or the flap and aileron controls. It should be noted that the wing was moved aft four inches to compensate for the 130-pound installed weight of the power system. To provide better control, the elevator of the two-seat *Janus* was substituted for the regular *Nimbus* elevator. Fifty liters of fuel can be carried in cells installed inside the wing water tanks. There are two small fuel tanks in the fuselage which act as sumps. The contour of the fuselage was not changed



Everything is functional. Note the 66-pound engine in the foreground.



Hugo Taskovich attaches outer wing panel of A-21J. Shown are the flaps/spoilers in the full extend position.

at all by this installation. With engine up, the fuselage doors are closed so airflow on the tail is smooth. Klaus Holi-ghaus says the ship flies like a regular *Nimbus* and he certainly demonstrated that when he soared around the course in 105 minutes, with the next best time the -27M taking 178 minutes but using 6.4 minutes of engine. There is no trim change with the extension or retraction of the engine. The extension is power operated from the electrical system and engine starting is also electric. Dual magneto ignition is used with an electronic system instead of breaker points. This conversion of the *Nimbus* to a motorglider was engineered by Engineer Laude of Schempp-Hirth.

Helmut Reiter displayed a *Standard Cirrus* with a very similar installation except for engine ignition. As far as could be determined these two installations were arrived at quite independently. In my discussion with Mr. Holi-ghaus, he was emphatic that the added weight would ruin the performance of the standard class ship, but have little effect on the big open class sailplanes. Reiter and others seem to be willing to take the weight with the resulting drop in performance because it is still quite a good sailplane and better than the SF-27M.

This year the -27M took first place in the single-place division due to its better glide angle and speed characteristics over the AS-K 14's. Even at that it was fairly close, but compared to the *Nimbus*, there was no contest. It was fortunate for those competing that the *Nimbus* only competed for one day.

In the two-seater category the new ships were the *Super Falke* and the AS-K 16. The majority of the motorgliders in Europe are side-by-side two-seaters. These were developed as trainers but gradually have found added use as a fun aircraft for cross-country work. The *Super Falke* is an improved version of the older model although these changes are not very obvious. It has a filled wing and superior finish throughout with great attention to cleaning up details. The result is a claimed 28:1 glide ratio. When the Scheibe firm was asked why this clean-up was put on the side-by-side instead of the *Tandem Falke*, the response

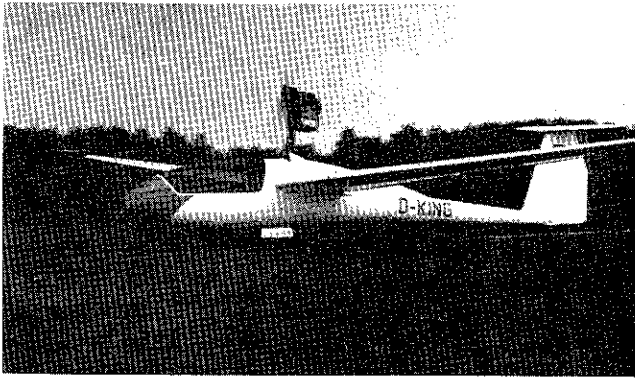
was that the demand was for the side-by-side version. To Americans this seems a little strange, but we are completely ignorant of this aspect of soaring. Certainly those in the two-seater portion of the contest were having a lot of fun. The entries from Denmark and Switzerland were husband-and-wife teams. While these aircraft are not very pretty, it was noticed in the competition that the *Falkes* were great climbers in light thermals, and that is a nice characteristic.

Because of the greater power requirements of the two-seaters they are equipped with engines derived from VW's. These take many forms and origins, with Limbach engines which are real aircraft engines being used in the *Sperbers*, K-16, and *Motor Falke*. The AS-K 16 took third in the two-seater class and was flown three days by Hans-Werner Grosse. The K 16 has a performance pretty much like the K 13 two-seater sailplane and with Grosse as a pilot, it makes a hot combination. I flew with Dr. Kaiser in the '16 and soared a little over Bamberg, finding it very comfortable (side-by-side) and very easy and forgiving. On power it is a first class airplane with great ability to go.

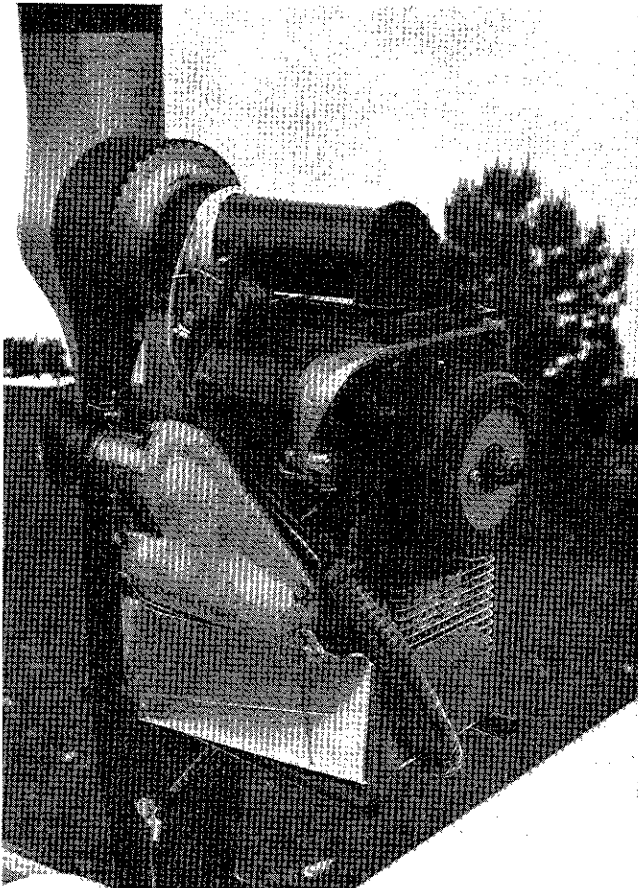
Two motorized versions of the tandem *Bergfalke* were shown at the meet. The Kreisberufeschule Detmold had taken a *Bergfalke IV* and added two Lloyd LS-400 engines. These were buried in the wing roots direct driving one-meter diameter propellers which rotated in slots ahead of the trailing edge. This is a structurally simple installation which flies quite well, but reduced the performance of the airplane as a sailplane. It is terribly noisy.

Bernd Scheffel had installed a Hirth two-cylinder engine and a two-meter propeller in a *Bergfalke IV* with a laminar flow wing. In this installation the propeller is on a pylon but the engine is fixed inside the fuselage. With a considerable reduction from engine to propeller speed, this was by far the quietest motor sailplane at the meet. This type of installation showed great promise, but was not as far developed as the other designs.

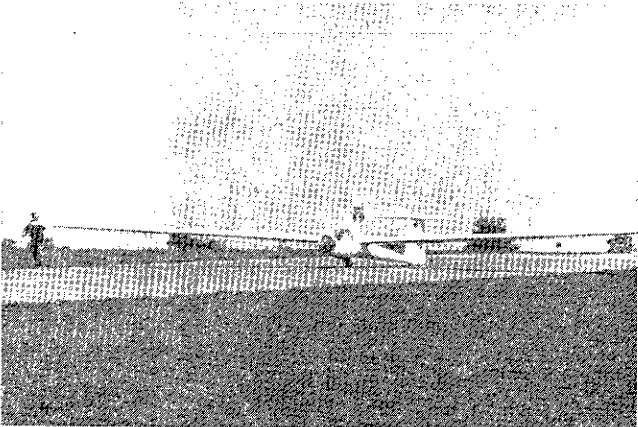
Sachs had a K 14 with a Wankel engine. It is rather surprising that there were not more displayed, but there seems



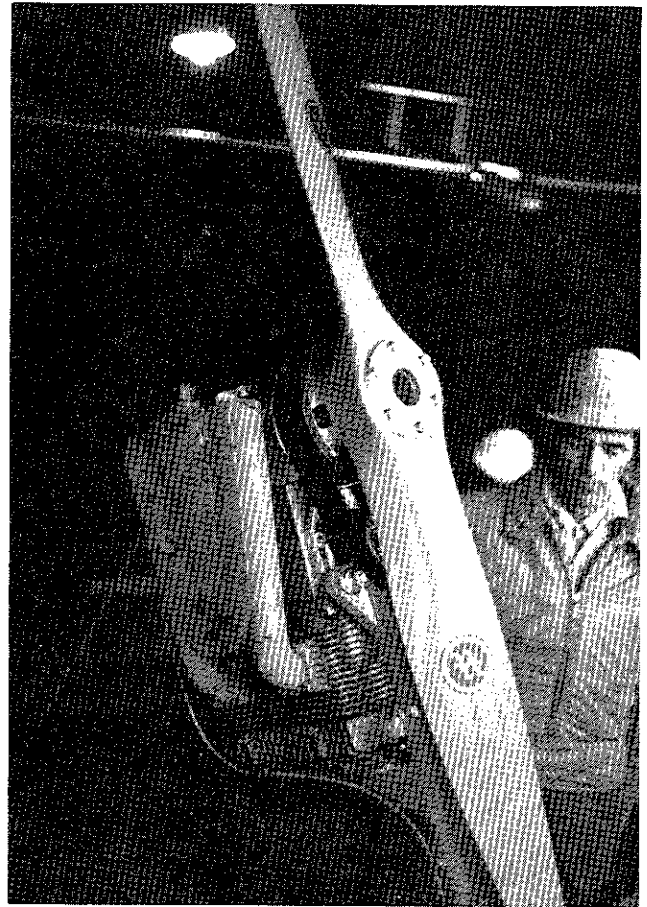
Motor Cirrus



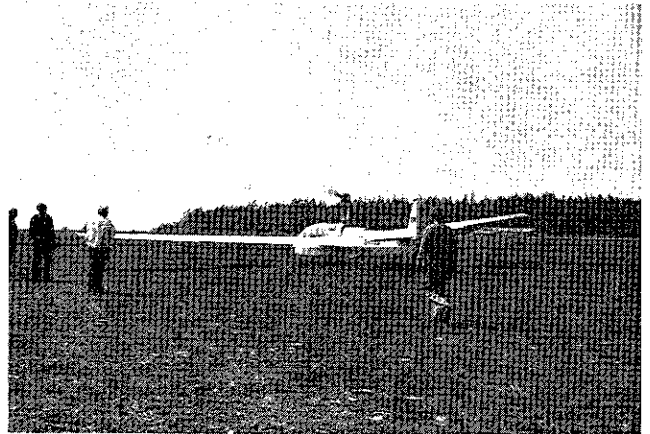
Hirth two-cylinder, two-cycle engine on *Motor Cirrus*. Note starter motor.



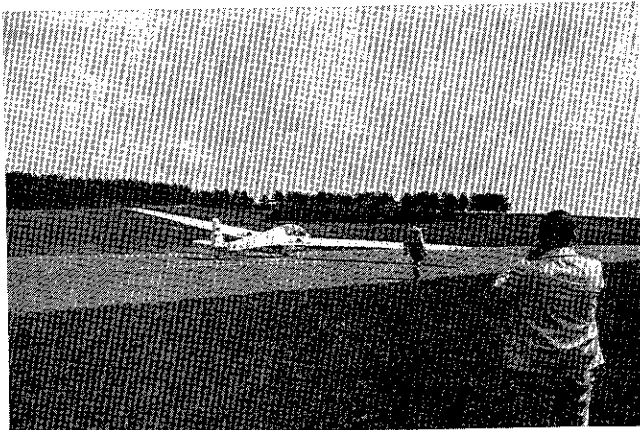
Nimbus M.



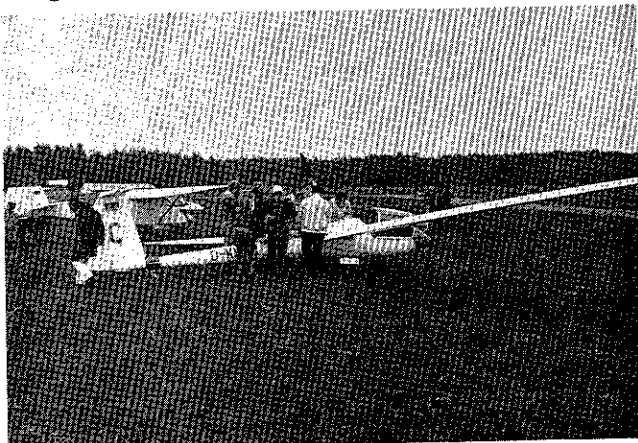
Hirth two-cylinder, two-cycle, twin ignition engine with Hoffman propeller on *Nimbus M.*



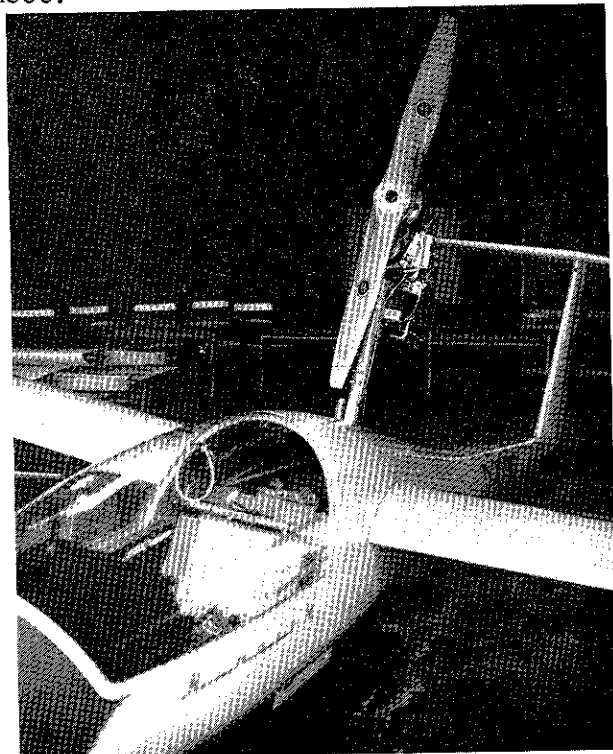
Bergfalke IV with laminar flow wing, Hirth engine and two-meter propeller.



Bergfalke IV with two Lloyd LS-400 engines and one-meter propellers buried in wing slots.



Nimbus M. Quite the attraction of the meet.



Nimbus M with engine extended. Note fuselage contours.

to be a lot of work to be done yet on this engine. The Sachs entry had some engine problems.

V.F.W. displayed a Wankel ducted fan assembly which has been flown on a *Blanik*, but there is no way to retract the unit. This does not look attractive for motorgliders.

One more trend should be noted. All the new motor sailplanes are coming equipped with electric starters. They cost weight, but they make life a lot more pleasant. When you have run out of altitude and have to get that mill running again, it is tough to pull a starter rope in a cramped cockpit. Not only that, remember that you can work very low if you know the engine will be given a healthy spin by the push of a button. We came back with a firm resolve to retrofit our K 14's.

As pointed out at the start of these notes, the trend is to add a totally retractable pylon-mounted power unit to a good sailplane, resulting in a motor sailplane that can compete with the pure sailplane. Some of the competition pilots are taking a good look at motor sailplanes as an area where there is a lot of fun with little potential for disaster. Everybody gets back. Try it, you will like it.

CLASSIFIED ADS

Scheibe SF-25B two-place auxiliary-powered sailplane. TT 100 hours, TTE 56 hours. Always hangared, good condition. Easily operated by one person. Kept at the Philadelphia Glider Council gliderport in Hilltown, Pa. Radair 10S, panel mounted. \$8500. Samuel W. Clipp, M.D., 364 Oak Dr., Souderton, Pa. 18694. 215-723-5161 (eves.).

DESIGNING & BUILDING your own auxiliary-powered sailplane and in need of sound engineering advice? For free detailed information send a self-addressed stamped envelope to: Amtech Services-mg, RD 8, Mansfield, Ohio 44904.

The Winner!

Scheibe's popular SF-28A "Tandem Falke" once again demonstrated its superior flight qualities by taking the first three places in its class at the 1973 Burg Feuerstein motorglider competitions. A clean sweep that consistently outclassed the heavier and less maneuverable ships. No wonder more pilots fly Scheibe powered sailplanes than any other make!



Contest winning performance at a reasonable price, plus docile handling characteristics and a worthwhile range under power (about 280 miles) mark the Tandem Falke as today's best value in self-launching sailplanes. The 60 hp Limbach engine with a Hoffman feathering propeller provides plenty of power to operate from regular airfields.

Engine-on Performance

Takeoff run	500/650 ft.
Rate of climb (sea level)	430 ft./min.
Maximum speed (sea level)	106 mph
Cruising speed	81-93 mph
Endurance (cruise)	3 hours
Fuel capacity	7½ gallons

Gliding Performance

Maximum glide ratio	26/27 to 1 at 53 mph
Minimum sinking speed	2.95 ft./sec. at 43 mph

The Tandem Falke's outrigger wheels and steerable tailwheel allow completely independent operation. With its outrigger wheels removed the Tandem Falke may be conveniently hanged with other sailplanes.

A side-by-side version is available for pilots who prefer this arrangement. Similar performance, but slightly lower rate of climb and glide ratio. Order the SF-25CS "Falke."

Prices include flight test, German certificate of airworthiness, flight and engine instruments, electric starter, feathering propeller, cabin heater, upholstered cockpit, two-tone paint, packing, sea crate, and shipping to the port of Hamburg:

Scheibe SF-28A Tandem FalkeDM 49,800
	FOB Hamburg
Scheibe SF-25CS FalkeDM 49,000
	FOB Hamburg

Delivery, approximately five months from order.

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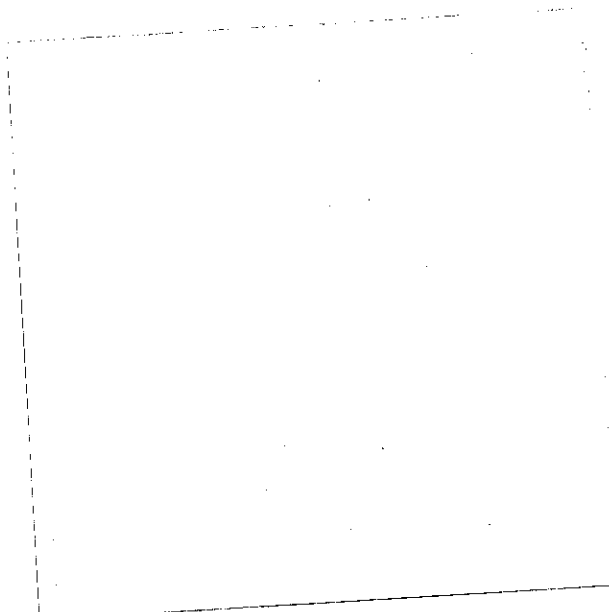
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ABOUT *MOTORGLIDING*

We are sorry about the long delays between recent issues of *Motorgliding*. (This issue is being mailed in August.) One of the problems we face is a shortage of material. This publication was started in order to provide a means of communication between designers, builders, and pilots. If *Motorgliding* is to continue to exist, designers, builders, pilots, and others must continue to communicate, specifically by writing articles for *Motorgliding*. Need I say more?

POWERED SAILPLANE OUTING

Bill Rodenberg and Les Arnold would like to have a get-together of motorgliding enthusiasts at Rodenberg's strip at Brownsville, in northern California, on October 12-14. An open invitation is hereby extended. Bill says he has places

for people to stay.

Bill Rodenberg was stirring up interest in powered sailplanes four years ago or so and was instrumental in the birth of *Motorgliding*.

If you are interested in meeting and flying with other enthusiasts, contact Bill at Box 18, Brownsville, California 95919.

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