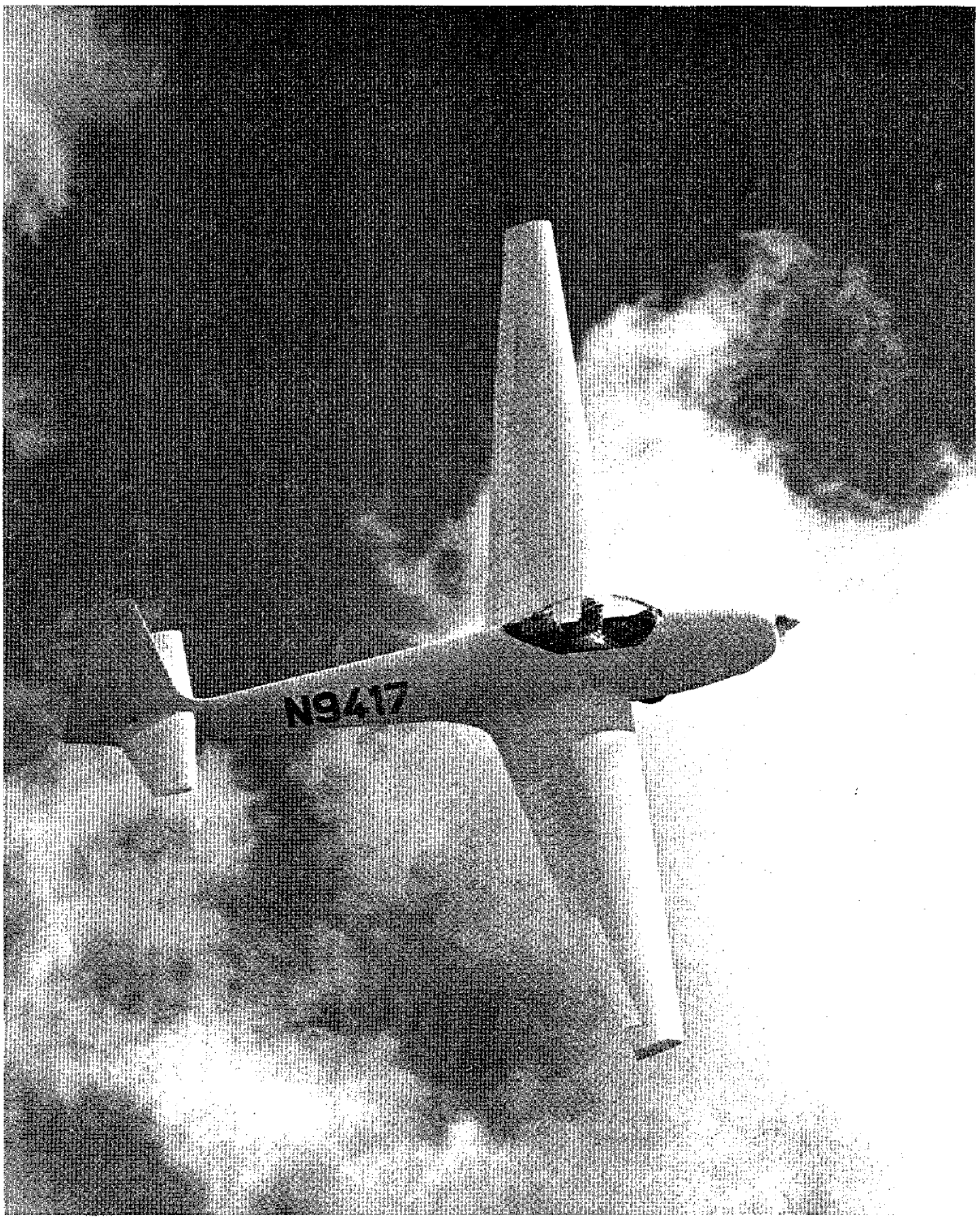
MOTORGLIDING

AUGUST 1974
50 CENTS

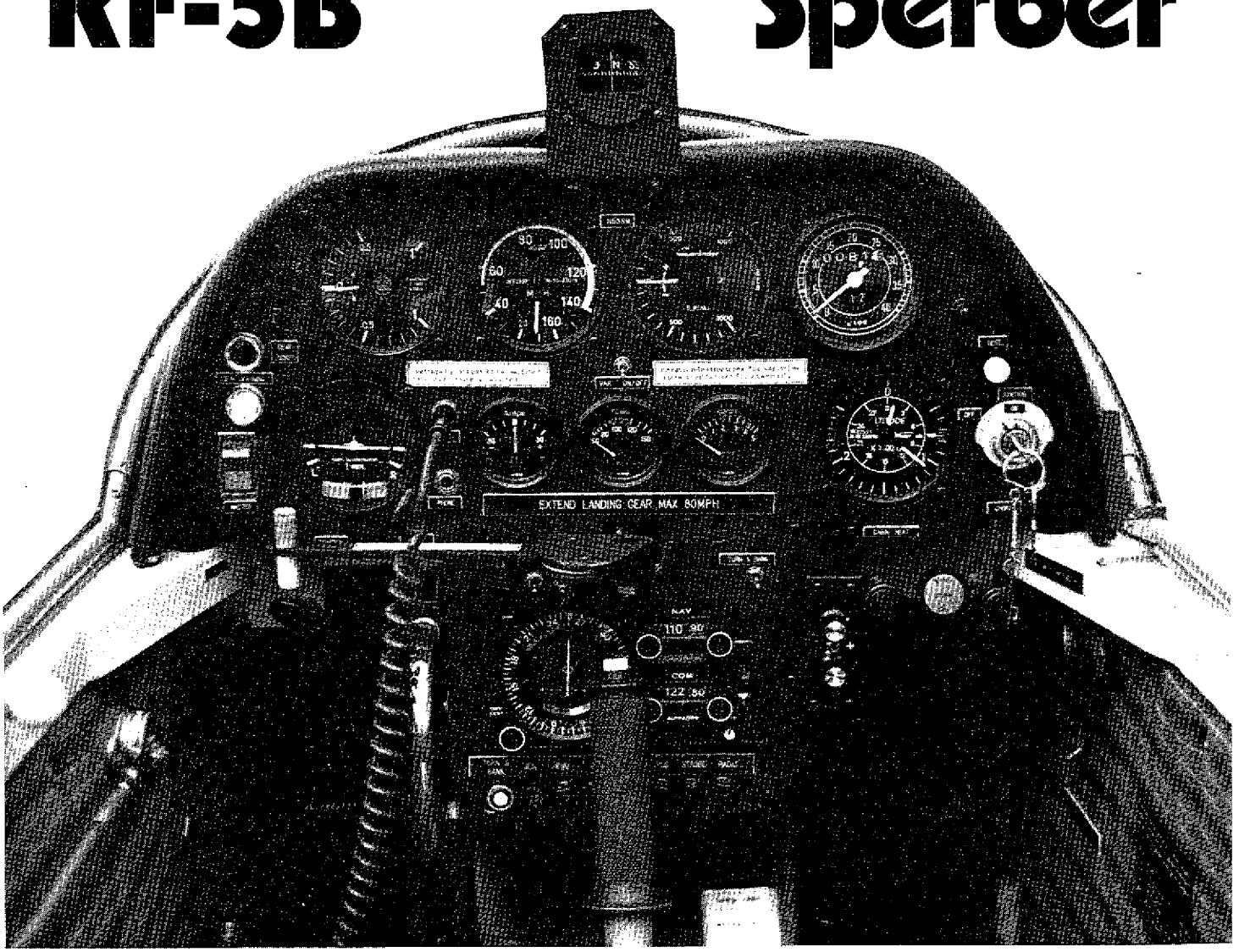


Be with the in group

Do your thing in the air

Fly the

RF-5B Sperber



SPORT-AVIATION INC.

401 HOLMES BLVD. WOOSTER, OHIO 44691 (216) 262-8301

MOTORGLIDING

Donald P. Monroe, Editor

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Contents

Cover: Nelson Riley, cavorting in his Schleicher AS-K 14

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CONFESSIONS OF A MOTORGLIDER EATER

by Stephen du Pont

If you suffer from motorglider eater's hunger, the following morsel might appease you for a while if it doesn't make you ill instead. But first allow me to be indiscreet enough to say that I have been too often bored by accounts of flying some new airplane. So as an inticement, I shall include in this story some of the unimportant little things that brightened my experience, if it indeed needed any brightening, and hope to slip in the facts like the old TV ad idea of writing *Coca Cola* very very lightly all over the Sunday afternoon ballgame. You were supposed to get the message without it spoiling your game. It doesn't appear to have worked, but I'm going to give it one more chance. You might think my treatment of the little things are unfriendly to Burt Buytendyk who so kindly allowed me to play with his big toy. I hope he will forgive it by understanding my reasons. I refer to his motorglider, the Sport Avia Putzer RF-5B *Sperber*.

Now and then we take hold of something that looks very smooth but find a splinter. Maybe it is mental, something that looks simple but we discover has to be figured out. Considered with its good points though, if it is good, we soon find that out. Walk across the kitchen floor in your bare feet on Sunday morning, which feels good and you will notice the smallest piece of cornflakes, catfood, or butter. But go barefoot every day, and you will stop noticing these little things.

The cave man stumbled over a dinasoar bone or stepped on something that had gotten tired and fallen from the roof, or maybe it was something that had been left there by the very young, but because the cave was good, definitely better than going out in the dark among the tigers and boa constrictors, he took it as it was. That's how caves were, you put up with it or went outside in the dark.

I had looked forward for a long time to playing with Burt Buytendyk's RF-5B. Coming home from the Open National Soaring Contest at Adrian, Michigan last summer, I had planned to drop by Burt's at Wooster, Ohio and give my ground crew a ride in a motorglider. However, one of my spys let me in on a plan whereby when I would be in the trailer checking over the security of the sailplane, my crewman would see that the door swung shut and the latches fall into place. Then they would drive quickly past Wooster and towards home. The reason was to get home before his job was given to someone else, as he had already been away longer than his boss had agreed to, and the day at Wooster would do it. I got the message just in time and changed my plans. I'd have to see Burt some other time.

Thus it was that when Bill Welch of Danbury, Connecticut, the dry one who never touches it, conned *Smirnoff* into thinking they would sell more vodka to him by furnishing some of the gas for the RF-5B to conduct the flight study of the hawk migration, or the "Hawk Watch" as it came to be called, I hoped I'd get a chance to have some flying in the little Jewel after all. But this couldn't happen until after the Hawk Watch was over, and that wouldn't happen until the hawks were done migrating, and any middling intelligent hawk knows that the hawks get their migrating over before the soaring season is over, since soaring is how they go. There were not to be many days left in Connecticut for soaring after the hawks were gone. So soaring was not to be part of my experience with the RF-5B—not this time, anyway.

I've been around a lot of different kinds of airplanes over the years and know that every new type you get into you can expect an allegorical piece of milktoast here and there to step on with your figurative bare feet. At first it might feel like a walnut in your shoe, but as time goes on it disappears as if it had only been an ice cube. So when I stepped up onto the wing of the motorglider and a few seconds later it went "clunk" and I stumbled back into the soggy part of the wing, I thought at first it was terrible. But after I'd done it a couple of times I knew it was going to go clunk and thought no more about it. After all it only clunked about two inches at the most as it tottered on its single main wheel from the right outrigger roller to the left with my weight.

Get into the front cockpit where you will fly it from, and wriggle around a bit to see where things are. When you try to get out maybe you can't get your foot from under the landing gear retraction handle, low on the right, without taking off your shoe.

Do it several times and you will have learned to quite unconsciously push your foot forward, turn it a little to the side, twist it to the left and push and it comes right out. At first I honestly believed someone had boobytrapped the little air-

place because things like this seemed to keep happening. I'll mention some of them as I go along just to spook Burt, but remember this: They quietly go away of their own accord and you find you are an enthusiastic part of the RF-5B. The motorglider is indeed something different than you have ever been in before. It is intended to do something no other airplane is intended to do. It's a sailplane to which have been attached at last, all the things you've always wished your sailplane could have. At first sight, the airplane looks big. With 56 feet of wing and a gross weight of 1500 pounds, it is big. But the flip-tip wings are the ingenious solution to its size. Just fold the wingtips up and over and lay them down on the inner wing and you shorten the span twenty feet, making it 36 feet instead of 56. To get at this you merely need to remove a safety pin, flip up a small trunklatch and remove the four-inch wide fairing strip. This reveals the attachment mechanism that every glider pilot is already familiar with, except that this one goes yours one better. It has a lever to pull the pins and they remain captive, not having to be taken out and put somewhere. Depress the thumblatch and swing the little lever forward and the pins are pulled, and you merely need to lift the tip and fold. The aileron hookup is fully automatic—they never unhook. You can taxi it this way, between narrow rows of tied-down airplanes or between post-mounted taxiway or boundary lights that are put high to keep them above the snow. It will fit into a tee hangar, which even a standard class glider won't do. The RF-5B does not go easily into a trailer because taking off the wings is a major operation, too much to do each time you fly it. But with its wings folded, it will easily slide into a hangar full of airplanes just like any other small plane. Then putting the wing out again is foolproof, as you could not replace the fairing unless the pin lever were back and latched and the pins home. Once home and latched, wild horses couldn't make the pins come out.

When you first get in, you will find that the front canopy has to be opened before the rear one, and closed after it. When I saw this I thought "here we go again" but then I realized how sensible this is. The first pilot always flies from the front, so it is he who should first open the canopy. He does not want to have the rear occupant ever open the big rear canopy at the wrong time, and this is clearly prevented. If he is flying alone it stops him from forgetting to close the canopy behind him, and even if he did forget to latch it, it could not come open in flight because the front one overlaps it. Should the rear pilot need to bail out, there is the usual red knob for the purpose of jettisoning the canopy. Get in and sit down and find the German safety belt and shoulder harness, link them together and pull the straps to tighten. Good instant adjustment. Push the fuel shutoff knob forward to turn on the fuel, which is in a tank ahead of the front cockpit, and has a fuel quantity float with the indicating wire in front of your windshield so you can't forget it. There is a master switch on the left, with a split toggle for the alternator such as the latest airplanes have. I noted this diversion from our *Motorspatz* which has no electrical system, and uses a pull rope starter, and the RF-4 which also has an "armstrong" starter. Pull out the choke button on the right and call "clear". Turn on the ignition key next to the choke, one mag only, and pull the starter knob under the panel on the left. You would have had to put the long propeller feathering handle into low pitch, and out of feather, because it gets in the way of pulling the starter knob if the prop is in feathered position and it is forbidden to run the engine with the prop feathered. The little jewel thinks for you! With the throttle at about 1/4 opened, the Limbach-conversion 1700-cc Volkswagen engine starts like any beetle or squareback. There is a Stromberg pressure carburetor familiar to foreign car buffs, and that compensates for altitude, with no carburetor heat control. The choke has to be held out so it won't choke by accident. The tach has a red line at 3600. Run it at 1500 or 2000 rpm until it runs smoothly, then let it idle down to about 1200 to 1500 rpm. As soon as it will take the throttle to wide open smoothly, the book says it is ready to take off. And you didn't forget to check the oil pressure, did you, or to press the button that tests the landing gear warning buzzer and yellow warning light? The green light should be already on.

Taxiing out at first you may think of the cornflakes on the floor again, as you teeter what seems at first precipitously, but is only the two inches the outrigger rollers lift above the ground. Now you know how the kid feels with those

outriggers on his bike, and you may resolve to run right home and take them off so he can ride it as its meant to be ridden, but like the kid you learn fast and after that you may think, "this is a pretty good way to make an airplane". The Air Force thought so, too, and there have been several military airplanes having narrow "bicycle" landing gear with outriggers. The steerable tailwheel has to be steered by the rudder pedals with determination, and this is decidedly better than something that goes where and when you don't want it to. The handbrake pull is under the panel, and turns to latch. It could not be hitched to the spoiler handle because when the wings are folded they cover the spoilers which then won't come out, and this causes there to be an extra control that is avoided in most sailplanes. To taxi of course, it is necessary to use the throttle to go, and to use the handbrake to slow, all the time holding the stick back (it is a taildragger) with your third hand and holding the mike to talk to ground control with the fourth hand. With the fifth hand you can turn the radio volume control and switch from ground to tower and so forth. If you are a Balinese dancer you can even smoke because they have six. But as with the bats and the cat food, it takes no time at all to overcome and get used to. After that you do it as if you had eight hands, two to spare for applause. The only disappointment is that the guy in the back checking you out can't see how effortlessly you are managing it. You could say the cockpit is tidy, neat and compact. The fact that when you turn the brake handle it hooks over the end of the stick is not really a problem, because when you begin the takeoff run the stock will be back holding the steerable tail wheel on the ground and the brake hand will be on the throttle, so it can't happen then. If you find you have turned down the radio volume with the tip of your thumb that projects over the end of the stick, well, if you had hooked your wrist around the stick to hold it back as you should taxiing, while you are using the brake with the same hand, it wouldn't have happened, so as you learn to do that, you forget to do the thing you shouldn't have been doing anyway and it sorts itself right out.

The RF-5B is a taildragger and you'd better act accordingly if you don't want to be chewed out by the checkout pilot. At the beginning of the takeoff, get the stick back and keep it there. Keep the steerable tailwheel on the ground as you go down the runway towards the moon. The takeoff reminded me of all those past beautiful airplanes I have mourned, that are gone forever. Why didn't I keep them? The *Fleet*, the *Waco*, the *Monocoupe*, the Ryan ST-3? But I am not like my brother, Lex, co-owner of our *Motorspatz*, who never got rid of anything he ever owned including motorcycles, race cars and his wife. He had to create a museum to put it all in (not the wife) and this includes a Grumman, *Wildcat* that flys like mad, a *Tiger Moth* that will when it gets recovered, and miscellaneous items including a motorcycle our Dad built from a kit in 1901. But I digress.

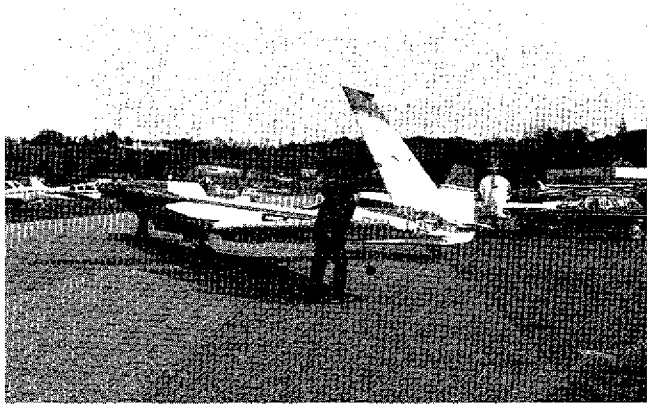
The little jewel takes off just like an airplane, Volkswagen and all, and purrs like a small panther as it climbs out at a respectable 400 ft/min or more. The gear must be retracted or let down at less than 80 mph, but you may fly with it out up to the 140 mph redline, as you can with the spoilers.

Unlatch the gear latch, 'er, undo the landing gear latch handle, um, that is, let go of the stick—wait a minute, get the guy in the rear cockpit to hold it while you unlatch the gear latch with your left hand, and try to reach the gear retraction handle with the right hand. Handles too far down, have to loosen your shoulder harness a bit to reach the handle. Clunk "ouch", mashed your finger when the handle came over and down at the side of your seat. Well you've learned that and it won't happen again. But the right way to do it is the way it says in the operations manual! Unlatch the little button on top of the latch lever beside your right thigh, and push the little lever backwards. The gear should then fall free a bit from the locked down position. If it doesn't, put your foot under the handle, and you will know right where it is because that is where you had to leave your shoe, remember? The big lever then comes right up and back. Keep your finger out from under so it won't mash it again; you are a pilot and pilots learn fast; it goes down with a crisp snap as the springloaded latch snaps into place. The gear is up and locked, and if the buzzer won't stop and the yellow light won't go out, and the green light won't come on, you have probably forgotten to shut the spoiler handle into the detent. In a sailplane this would be unforgiveable but in the RF-5B it won't even kill you. You won't know it until the buzzer gives the alert.

I like to think that Burt will not be mad at me by now because he would know that if I hadn't kept you on your toes you would have tossed the magazine aside and turned to something else.

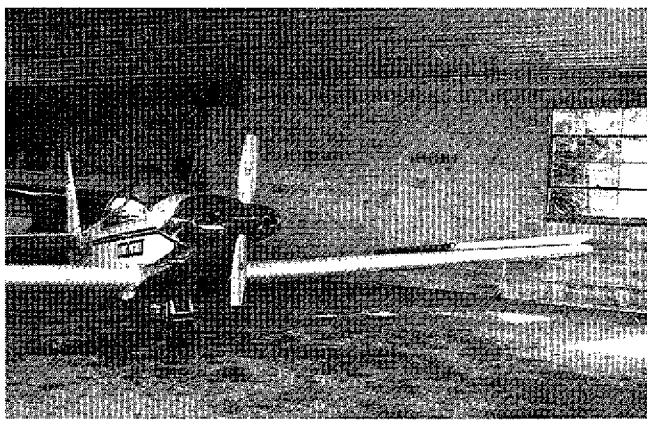
But let's get on with the flight checkout. Climbing is great, until you realize that the altimeter is a little strange. Strange? Never saw anything like it did you? Here is how it works. On this particular airplane you see they had a metric altimeter, where one revolution of the minute hand equalled 1000 meters. That's all right in itself. It was when they changed to feet that it screwed us up, but once you get that Pteridactyl tooth out of your boot, it will be all right. This altimeter I am telling you about works as follows. The twenty-after mark has a "1" on it, and that is 1000 ft, with each of the ten divisions from noon being 100 feet. Now the twenty-of is 2000 feet, and that's what the "2" is for, this time, anyhow. The noon is zero and of course that is 3000 feet, and twenty-after this time is 4000 feet even though it says "1", and the twenty-of is 5000 ft though it distinctly says "2", you see, and so forth right up to within 500 feet of cloudbase. The hour hand saves the day, indicating 10,000 feet at twenty-after, and 20,000 at twenty-of and you probably won't go much over 30,000 so don't worry about that. The 100-ft minute hand divisions are 1000 feet for the hour hand.

You are getting the picture on the altimeter as you climb out when the guy in the back who is checking you out calls and says something about "don't you think this is a little high for the pattern?" and you come back to reality and make your 45 degree turn out, carefully avoiding any dynasoar bones or bats and at the same time you are reminded that the cockpit is quiet enough for the occupants to converse in reasonable tones. Climb it out for a while until you find some lift, or if there isn't any, just get high enough to fool around a bit. Let's shift the prop into cruise pitch. It's easy. Just slow the engine to about 2200, and apply a slight back pressure to the prop lever at the bottom of the panel. This applies the actuating rollers against the shifting disc on the hub, and pushes the blades a little steeper. When this happens the centrifugal force can push two weights out under the blade stop, and hold the blades in the steep pitch as you release the handle and withdraw the rollers back

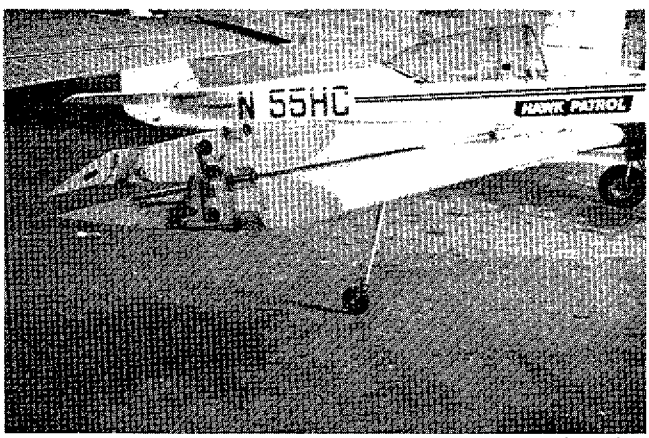


Folding the wingtip of the *Sperber*.

Bill Welch, of Danbury, Ct., flying the *Sperber*.



RF-5B Sportavia Putzer *Sperber*.



RF-5B Wing-folding and latching mechanism. The always-connected aileron linkage is seen aft of the spar.

away from the prop hub disc so nothing is spinning that oughtn't to be and you are shifted. Prove it by opening the throttle, and the revs will not exceed 2700 or so whereas they would have gone to 3300 easily in the low pitch. If you were to stop the engine to soar, and want to feather the prop, you would first slow the engine down by closing the throttle. Fly it at about 60 mph so the prop slows to say 1000 rpm, and cut the ignition. When the prop comes to a stop, pull the prop control lever all the way back and over to the left to feather it. As already stated, you won't be able to conveniently reach the starter with the feathering lever feathered, and this will prevent you from starting the engine again with it feathered, which is forbidden. When you do start it, the prop will always have reverted to the flat pitch where it should be. As observed above, the little jewel thinks. As one who has worked professionally with the design, invention and patents of propeller shifting mechanisms and been intrigued with them for many years, I am amazed at its simplicity, and wonder why I never thought of it myself.

When it comes time to land, about all that will happen if you land with the gear up, provided you have already stopped the prop crossways, is that about ten or so people will have to come out and pick the little bird up, with you in it, so you can drop the gear again. You may break off a landing outrigger from one of the wings which is a simple thing to replace. There are small wingtip skids though, so if you were away from home when this happened you could come back without the outriggers, relying only the usual glider wingman to get you going. You could land in the grass when you get home and probably do no harm. I'm guessing of course, not having done it but this seems to be the situation. The manual advises landing with the gear retracted, if you only have the option of running it into the fence in a small field. The prop is worth well over 1000 dollars. And it is perhaps always wise to recall the famous WW II word to remember to do what has to be done before landing with retractable gear and controllable propeller. This is G-U-M-P, meaning "Gas, Undercarriage, Mixture, Prop." in our case the mixture might be considered the choke. As a way of avoiding gear up landings by accident it works like a dream—every time you *remember* to say it. We did, and made it down O.K.

On the ground the little airplane has charm, and even girls who don't know a *Cub* from a road scraper will come up to the RF-5B and say "Oh, what is it?" and her escourt will put a possessive arm around the girl as you dismount the RF-5B. There is something about this little bird that even mothers like.

I have already said that I have not had a chance to soar it but if I didn't get to soar the bird I did get to do just about all the other things a sailplane pilot can't do with his sailplane but wants to. We flew consistently out of Danbury on a weekend afternoon when the control tower personnel were on their knees begging for a chance to catch up on the traffic, they would have shot you down if you'd appeared in a sailplane and an aero tow. The little motorglider is completely at home on the surface of busy airports with control towers. Considering that I have to drive 85 miles, and about two hours to soar, the motorglider would allow me to soar on the spur of the moment after a drive from home of only about 20 minutes.

The motorglider should increase considerably your probability of soaring. You don't need to line up a tow plane, nor a tow pilot, nor a ground crew to get to the runway and help on takeoff. You do not have to worry about retrieving, and if there is no soaring in the immediate vicinity, you can run up to the hills, where the lift is, or hunt for the seabreeze front or the wave or whatever you like. Often there is lift far aloft when the wind breaks it up at lower elevations, or the wind may be wrong for your soaring site, or too strong. I flew this motorglider several times in winds so strong that most of the lightplanes were safe in the barn.

I had agreed with Burt to deliver the RF-5B to Frederick, Maryland, which is about 225 miles from Danbury, and part of the plan was to visit Lex duPont's "New Garden Flying Field" on Sunday when the glider people and sport flyers would be there. This is located 13 nautical miles out on the 332 radial from Newcastle, Delaware Omni. There I would be able to see how our home-built Pitts *Special* was coming along that my son, Bayard, who is Lex's A&P mechanic, was finishing up in the shops of the Colonial Flying Corps Museum. Maybe I'd get a chance to fly our jointly-owned *Motorspatz* which I had not flown since the Hoffman feathering prop had been added. There were more different kinds of

airplanes flying in more different directions that day at New Garden than I have seen in many a moon. The sign on the fence surprises visitors, not by stating "Authorized Personnel Only" but "Visitors Welcome". Several gliders were being flown, a PT-19 from the Museum was checking out a pilot, a *Canuck* came in from Canada, the L-5 was towing gliders, a homebuilt biplane was on the ramp, students were being trained in Piper *Cherokees*, and an *Austria* was being rigged, a Bell *Jet Ranger* was settling onto its dolly and all with a single 3500-ft runway. Visitors were looking over the P-38 and the *Corsair*, (not flyable yet, but someday.) In the hangar was the *Motorspatz*, the Fairchild 24 being relicensed, a Lake *Amphibian* that someone had just purchased and was being checked over. In the Museum was the Razorbacked Aeronca still uncovered, the AT-6, the PT-22, the *Gypsy Moth*, two incomplete Pitts's and the Grumman *Wildcat* buzzed the field en route to some navy show.

I made by first power-off landing there in the RF-5B and was then pleased to be able to roll off the runway under control of the steerable tailwheel, fold my wings to accommodate the busy runway next to the grass which was narrow and steeply sloping at the far edge, and taxi back to the gas pumps to take on 8.8 gallongs of 100-130, establishing a fuel consumption rate for the 140 nautical mile trip from Danbury of 3.9 gph, during which I had bucked a 35-knot headwind component. But how would you like to be able to taxi your sailplane from the runway back to the ramp? The indicated airspeed during the flight from Danbury had held around 105 mph and corrected to 111 true statute mph. I had already noted that the location of the pitot and static ports is good and Bill Welch had already checked the airspeed at cruise and found it accurate.

The little engine had only once given a tiny twirk, as if a plug had failed to fire, possibly due to the fact that we had had trouble with Avgas already and had changed to the 100-130. Other airplanes seem to dislike this new mixture of whatever dregs they make the "Avgas" from. It is the sort of thing you'd step over in the cave I guess, but the gray stuff on the plugs isn't the kind of thing pilots are going to get used to very quickly.

The 8.8 gallons of gas for 2¼ hours isn't bad for 110 mph true airspeed. If you assume a specific fuel consumption of .7 pounds per hp per hour, which would be poor for airplane engines but might be expected for an automotive conversion, you come out with 33.3 horsepower average for the trip. This means that at about 2900 to 3100 rpm I'd been pulling 52 percent power. The 38-litre tank (that is 10 gallons) would let you fly about 2½ hours to empty, or over two hours with safe margin. The fuel gauge wire bottomed at 1 hr and 50 minutes. These numbers don't actually quite jibe with the manual, but since the RF-5B is a sailplane, that doesn't seem to be too important, especially if you fly it with attention to the final glide tables and be conscious of your proximity to convenient airports. I made a Final Glide-in-Wind Calculator from an old military circular time distance slide-rule taped to a 3 x 5 inch index card having the glide-in-wind tables typed on it which I'd taken from *New Soaring by the Numbers*. I always knew whether I could have gotten to an airport by gliding, and was not afraid to fly it right down to the bottom of the gas tank. After all, with a 35-knot wind, I had a glide ratio downwind of 38 to one at 55 miles per hour, with the prop feathered. My glide ratio upwind was that day still about ten to one, even better because of the wind gradient at lower altitudes. Those occasional little power wiggles make you think about what to do if the engine quits. But going home in Lex's 185 Cessna, we had to turn back 5 miles out due to a stopped up injector and had to limp back home and get another airplane. So it is not always the motorglider or the unusual airplanes that give you something to worry about.

The following day the time had come to leave for Frederick, and the visibility was unlimited, but the wind was also unlimited. I was not able to taxi the RF-5B tail into the wind even with the wings folded to get to the end of the runway. I climbed out and picked up the tail and got it around and then Lex and another brother, Jacques, came down to the end of the runway and helped get the ship going in the soft ground there where it was a little wet.

It was good to see Jacques again after many months. He is reputed to have invented a new flight regulation called JFR. This means Jacque's Flight Regulations. Several years ago he flew me to Sanford, Maine in his *Aero Commander* from Danbury. He chose to follow the coast rather than to fly straight. You have to look at the map to appreciate this. It was

more interesting than the rhumb line, I must admit, but again I digress.

It was very cold and the little engine didn't seem to want to warm up. I held the choke until I thought I'd got it to take the throttle, which I found very soon was not quite enough, for as I neared the trees on the end of this rather short runway, (the grass one) the engine began to slow. I reached for the choke again just as something big and soft reached up from behind the trees and tried to pull us down. I turned short of the trees and went out OK over a big manure pile that the neighboring mushroom grower was steeping for next year's mushroom crop. The manure pile must have given us a lift for the motorglider caught on and climbed out smartly. Burt tells me that this cold weather problem has been cured in the new carburetor. The trouble was that the new carburetor was on another RF-5B out in Ohio, and I was in this one back in Pennsylvania.

I had again mentally kicked aside an unwanted object from the floor of the cave.

There weren't many light airplanes flying this day and it is a tribute to the RF-5B that it could handle the wind, with a minor bit of help from Lex and Jacques.

En route to Frederick, I went up to 3000 ft to get away from the "catspaws" that were reaching up from wide gray Chesapeake Bay and the wind-chopped Susquehanna river that seemed bent on pulling me down. Suddenly I was surprised to see ahead of me and quite close something madly flapping. My mind at the first instant established it as a "Booby", a kind of bird I had watched through the telephoto lens on my camera one day in the Cayman Islands, and that I knew darned well wouldn't be flying around the Susquehanna, but there it was. As I pulled my mind back to reality, the Booby or whatever it was gave several confused veers and dived flappingly for lower altitudes, just missing my trajectory. I thought, "My, I bet Burt is glad I missed that, whatever it was," when, oops, there it was again. It performed the same distressed maneuver, flapping wildly and diving out of sight below the cowl. But at 100 knots it could have hardly caught up to my motorglider so quickly again and of course then I realized it was a second bird. I had come up behind a brace of ducks or geese. When I got home I looked it up in Tory Peterson, and the only thing it could have been was a Canada Goose. Burt's little prop would have been fully feathered if I'd have hit it. Such are the thoughts that come to a motorglider eater when he is pondering chokes and manure piles.

At Frederick I wowed 'em by taxiing in with my wings folded through the closely crowded tiedown ramp at the Piper dealer's. The only other airplane that had the guts to be out in this wind was a Lear Jet that came in, while I was taxiing with my wings folded. He probably would have folded his if he'd had any.

As I said, I still hadn't had any soaring in a week of playing with Burt's lovely little airplane. Maybe the next time I will have. Meanwhile you *Blanik* owners will just have to imagine what it would be like to be able to taxi your sailplane wherever you wanted, for except for the slightly higher glide speed of the *Sperber*, yours is not far from the kind of soaring performance you could hope for in the RF-5B.

FOREIGN SCENE

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

Kranich III converted to APS

The French *Aviasport* (March 1974 issue) had a short article about this conversion. The translation is presented here.

The German homebuilder-designer Eduard Schappert installed a Fichtel & Sachs two-cylinder, two-cycle engine of 35 hp in one of the few remaining two-place *Kranich III* Sailplanes. The power is transmitted through a belt reduction drive to a two-bladed fixed-pitch propeller.

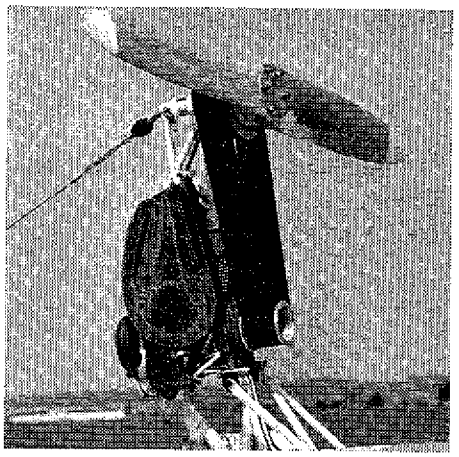
The complete power package is mounted on a pylon made of welded steel tubing. It retracts backwards into the fuselage (welded steel tubing) which had to be modified for this purpose. The plastic fuel tank has a capacity of only 2.25 gallons, limiting the power use to less than one hour at cruising speed.

Empty weight is 854 pounds and the payload is 356 pounds. With a comparatively low wing loading of 5.4 psf the takeoff run is 985 ft and the approximate rate of climb is 295 fpm.

The overall view of the power package is shown on Fig. 1 and its details are

shown on Fig. 2 (from September 1973 *Aero-Revue*).

1



2

Sportavia-Putzer RF-5D

The May 1974 issue of the German *Aerokurier* has a long article describing various new designs of this aircraft manufacturer known for their RF-4, SFS-31 *(Milan)*, and RF-5B *(Sperber)* models.

Two new models were added: a power plane, RF-6, available in two versions, the *Sportsman* (four-place, 150-hp Lycoming engine) and the *Club* (three-place, 100-hp Continental engine); and an auxiliary-powered sailplane, the RF-5D.

The translation on RF-5D reads:

The RF-5D is basically the RF-5B *Sperber* with features of comfort to suit the taste of discriminating pilots. The flying prototype has a more powerful engine (limbach SL 1700 ED, 74 hp at 3600 rpm) and a hydraulic disc brake. The horizontal stabilizer negative incidence was increased one degree. The three-position propeller HO-V62-R by Hoffmann Propeller Co. is being tested on the prototype to explore the engine-propeller combination. The more powerful engine should give shorter takeoffs and a better rate of climb, estimated to be about 690 to 748 fpm. With the new three-position propeller, a cruising speed of about 118 to 124 mph is expected at an increased fuel consumption. The takeoff weight of the RF-5D is 1430 pounds.

[PS: It should be noted that the span of the RF-5D is shorter (45 ft) with corresponding decrease of the wing area and aspect ratio as compared to RF-5B *Sperber* (62.3 ft), as well as a 53% increase of minimum rate of sink. The information about glide ratio was omitted.]

1000 APSs produced in Germany

This magic number was reached almost one year ago, according to an interesting article published in the German *Aerokurier* (May 1974 issue) describing the development of production APS models in Germany during the past 14 years. Some highlights of this article are given here in translation.

Like any other "new" movement the beginning was slow partly because of diverse opinions of qualified individuals who tackled the problems associated with APSs as well as about their purpose, i.e., what are they supposed to be and do.

On the basis of this information, the German Federal Aviation Office (LBA) issued on January 8, 1959, the "Preliminary Directives for Testing and Certification of APSs". While some minor changes took place during past years they remain the governing regulations. The introduction states that "If and to what extent the APSs achieve practical significance will depend entirely on the ability of designers to come forth with creations which would satisfy the desires of pilots with respect to flying qualities as well as economics of operation. It is the purpose of these Preliminary Directives to collect substantial experience needed to create a solid base which should not hinder future development possibilities".

It is expected that a new edition "Airworthiness Requirements for APSs" to be issued during this year will replace the "Preliminary Directives". The new requirements contain no provisions which would impose on further developments of APSs.

A diagram showing the number of APSs produced in Germany over a 14-year period (1959-1973) has three nearly linear regions:

1959		production about to begin
end of 1964	33	
1968	133	produced (total number)
1973	660	

At the end of 1973 there were 40 additional APSs in process of certification, and a total of about 300 APSs were exported.

This adds up to 1000 APSs produced

by the end of 1973!

A valuable basis for further development, as well as new designs currently under consideration is provided by this large number of APSs with tens of thousands of flying hours. The creation of the APS provided new lift to the sport of flying. The takeoff under its own power —making it independent of a tow plane or a winch—presents the ideal solution for soaring in the future.

Polish SZD-45 *Ogar*

December 1973 *Motorgliding* carried a description of this newly developed, two-place high performance APS. While a three-view sketch was included, no illustration was shown. The May 1974 issue of the German *Aerokurier* has a lengthy article on details of this interesting APS.

According to this article the original development was a German-Polish effort. The SZD-45 will be marketed throughout Europe and because of a favorable price substantial competition is expected. This in turn should further the cause of soaring with auxiliary power.

The best glide ratio of SZD-45 *Ogar* is about the same as the two-place sailplace *Blanik* but the penetration appears to be much better (L/D = 28.5 at 63 mph).

Although scheduled to compete at the APS Contest at Burg Feuerstein last year, SZD-45 *Ogar* could not be completed on time. This year the situation was no better: it was damaged during the trip from Poland to Burg Feuerstein. Hopefully, they will not give up and try again next year!

SILVER DISTANCE IN A BUZZ BOMB

by Frederick L. Jacobs

After three years of frustrated attempts in 1-26's, a 2-33 and my SF-27M, the day I had been looking for arrived. Saturday, May 18, 1974 was a beautiful day with light westerly winds, blue sky and cu's popping. Time to test my modified Winter barograph (replacement of the vibrating weight with a solenoid to operate the engine time scribe) and try for my Silver Badge Distance Leg.

Willing hands helped remove N54175 from the box and assemble it at Canaan Airport, home of Nutmeg Soaring Association, Inc. The bird was checked carefully, a new set of L4G sparkplugs installed and the emergency thermal blend replenished. The barograph drum was rotated to establish a base line, the altitude scribe jogged and the time carefully noted by Jack Sargent, the official observer. He then sealed and installed it on the luggage tray under the thermal reservoir, in accordance with SSA requirements.

Nearly three hours had elapsed by this time. It normally requires about 1:30 to assemble and become airborne, but tinkering with sparkplugs, barographs and forms consumes frustrating amounts of time.

Takeoff at 13:22 was to the south with a climbout at 350 fpm, 5200 rpm and 45 knots. A right turn brought me over the ridge west of the Housatonic River. In lift, engine off at 13:27, I climbed to 3200 feet, then dove and crossed the start gate (north end of the strip) with 2800 feet at 13:31.

I found a weak thermal north of the airport, then into 300-400 fpm. Three miles north and topping out around 5000 feet at 13:47, the radio announced: "Scheibe 175, this is nine nine Sierra on the ground. Over."

"175 over."

"Fred, when are you coming through the start gate?"

I pulled the spoilers and down we went. Through the start gate (confirmed by radio—ground station still out but 99S operating this time) at 13:53 and 2400 feet MSL—1730 feet AGL. My thermal was still in business so up we went to 4800 feet and on our way over the beautiful green hills and valleys of New England.

I cautiously circled a few times along the first nine miles then climbed in a thermal near Great Barrington and again near Housatonic. Nineteen miles out we crossed the Massachusetts Turnpike and began to get a bit anxious as the altimeter continued to unwind. There were good fields below but we still had twenty-six miles to go. I found some turbulent lift near a pond at West Stockbridge. The lift became smoother as the altitude increased and we headed north past Pittsfield. I was getting low again but found another thermal beyond Lanesboro where the hills start rising toward Mt Greylock. I followed the rising ridge a couple miles then cut northwest toward Route 7. Another thermal in the lee of Sheeps Heaven

Mountain and we had it made. I skirted west of the Mt. Greylock foothills and into North Adams Airport. No speed record—1:40 to cover 46 miles, but we made it.

After having my landing witnessed and showing the Scheibe to Bob Burchard and his crew I cranked up to head back to Canaan. Bob shouted over the roar of that lusty 26-hp Hirth that I had a leak. I unfastened the harness and twisted around to look. Sure enough, drops were forming on the fuel pump. So that's where all the oil on the engine and tail was coming from, rather than being spit out of the carburetors!

I buckled up and took off to the west. About three miles out at 1500 feet AGL was the best thermal of the day. I quieted the bird down and thermaled in 600-700 fpm to 6000 feet—cloud base for the first time. I headed over the Taconic Range but found mostly turbulence with little lift. I followed the hills south then headed out into the valley to the west to check some cu's. Happily they worked as the nearness of the ground was approaching decision altitude. The cu's ended at Route 20 west of Pittsfield. Topped out at 4500 feet, crossed back into the home valley and started a careful glide through blue sky. A thermal over the ridge beside Housatonic came to my rescue with enough altitude to reach the hills at Great Barrington. These pushed me high enough to reach Canaan comfortably.

Silver distance and retrieve with no trailer or towplane! Engine time for two takeoffs was twelve minutes.

The return trip took 1:10 but the fight wasn't over. The barograph was opened and the barogram duly noted and fixed. Unfortunately, I had used an obsolete SSA application form which did not mentioned that SSA Item #3-M was required. The application was held by SSA pending completion of this form. What with vacations, etc., the distance leg was not approved until September 6, 1974. Silver Badge No. 2674 was issued.

LETTERS

Editor:

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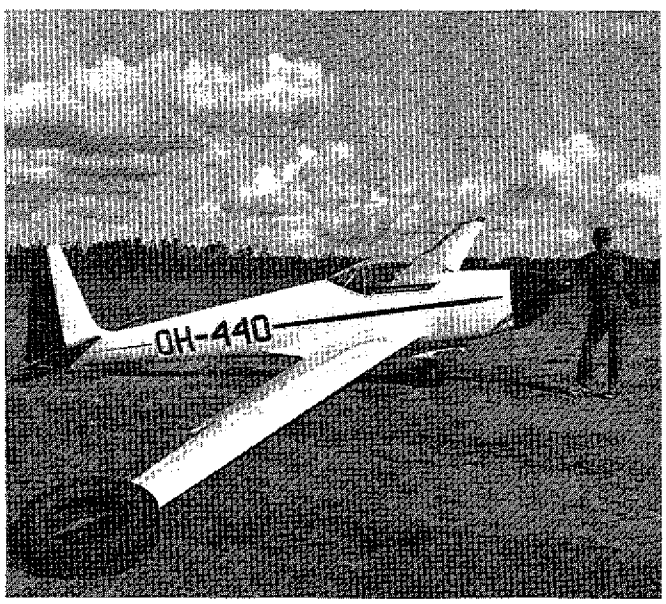
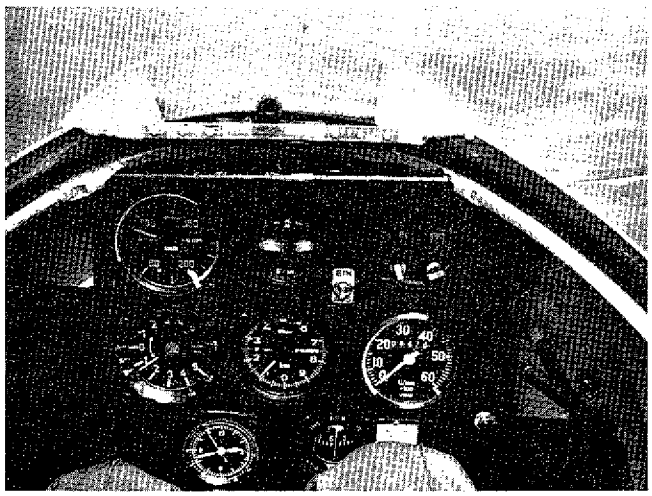
Included here, please, find a photo of my AS-K 14 motorglider which I bought from Germany last spring. Last summer was not very good for soaring in Finland (the whole summer was very rainy) but I managed to get 65 hours in my log book of which 53 hours are soaring. The longest distance I achieved was just over 100 miles in soaring but this was unofficial since I did not





have yet a barograph and turnpoint cameras....

Jukka Tervamaki
Helsinki, Finland

Editor:

Have just received my second issue of *Motorgliding*, and I am certainly glad I subscribed. I would like to pass along the following as I regard it as being the most hopeful project toward an everyman's motorglider, namely one which can be built for under $3000 in less than a year of spare time.

In the March 1975 issue of *Sport Aviation* there is an article on the Rand KR 2,

a two-place side-by-side foam, dynel homebuilt powered by a VW engine. Basically it is an enlargement of the KR 1 single-place. In the article it is mentioned that Ken Rand, the designer, is in the process of developing a long-winged KR 1 of 37-ft. span intended to be a homebuilder's RF-4. The ease, simplicity, and low cost of his former designs, and the rapidity of development time make this project, in my opinion, a lot closer to a reality than most might think.

I've met Ken personally and he's a real dynamo geared 100% to the common man's desires in aviation.

Personally I'm going to drop him a line and try to convince him there is a need and a lot of desire for a homebuilt motorglider. I got my private in soaring, but went to power because I live in the city, and have just paid off my 1940 *Cub* after a three-year struggle, but I've never forgotten soaring. I wouldn't go any route in soaring but a motorglider, the best of both worlds. If any of you would like to drop a line to Ken his address is: Rand/Robinson Eng., Inc. 6171 Cornell Drive, Huntington Beach, California 92647.

I do hope that any motorglider owners would pass along flight stories via the pages of *Motorgliding* as I never tire of hearing them, also if you ever need any ballast in the back seat I have yet to ride in a motorglider.

Chuck Kelly
Torrance, California

Editor:

I began soaring less than one year ago, and through a concentrated effort, I have accumulated a large amount of information regarding the cost of sailplanes and their components. My interest in the hobby plus my background as a diagnostic radiologist and businessman makes me tend to look at the hobby of soaring in very practical terms. I have just recently returned from a trip to the United States in search of my second glider, and have come to the conclusion that although the motorglider is probably the most convenient and safe form of soaring aircraft, the ripoff as to the cost of such aircraft will never allow this form of the sport to appreciate its full capabilities. The cost of motorgliders doubles once that little tiny engine is placed within its nose or in the enclosed compartment behind the cockpit. For the price of that motor installation, I would think that the average soaring pilot could use that same amount of money for all the tows that he probably requires in all the years of soaring that he will do. In other words, the idea of a motorglider is practically sound but financially we are being screwed by the manufacturers

J. E. Bachynski, M.D.
Edmonton, Alberta, Canada

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	10 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 hangared 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 in container, and shipping to the port of Hamburg:

Scheibe SF-25E Super Falke ..... DM 55,500
(First place, 1974 Burg Feuerstein)
Scheibe SF-28A Tandem Falke ..... DM 49,800
Scheibe SF-25CS Falke ..... DM 49,000

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POSTFLIGHT NOTES

Recent subscription renewal forms reveal that several motorgliders are under construction by readers. We will give more information in the next issue of *Motorgliding*, but we'll comment here on one:

C. R. Bratton, of Brigham City, Utah, has a motorglider of his own design about 50 percent complete, with about two or three more years to go. It will be all aluminum, 40-foot span, aspect ratio 12.5, single-place, 30 hp Rockwell JLO horizontally-opposed two-cycle engine mounted in the nose, 3.5-gallon gas tank, single main wheel, steerable nose wheel, outrigger wheels. Designed for 9 g's and 145 mph maximum speed; has extra long ailerons and large rudder. It has flaps, but no spoilers.

Please keep your articles coming. We also need plenty of pictures, including 8 x 10 glossies for cover use. *Motorgliding* cannot survive without your contributions.

7th APS Contest - Burg Feuerstein 1975

A form letter dated January 8, 1975 was received from the well-known German soaring and APS enthusiast and engineer, Dipl. Ing. Hans Zacher, announcing the tentative date of the 1975 APS Contest at Burg Feuerstein.

Since the German Aero Club decided not to sponsor this year's event a group of three APS enthusiasts, Messrs. Jan Eilers, Gerd Stolle and Hans Zacher decided to proceed with this traditional event. These individuals were largely responsible for the previous APS contests, thus the quality and good time should not be missing.

In addition to flying tasks technical sessions as well as flight evaluations (performance measurements) will be taking place. A more detailed announcement will follow.

1975 APS Contest (indluding international participation) location: Fraenkische Fliegerschule Burg Feuerstein D-8553 Ebermannstadt/Ofr.—West Germany. Date: tentatively September 6-13.

CLASSIFIED ADS

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.

SF-27M for sale. Radio, instruments, enclosed trailer. Virtually new. Homer J. Rader, Jr., 1226 Commerce, Dallas, Tx. 75202; (214) 741-3641.

WANTED: FOURNIER RF-4D, J.O. Hankammer, 3920 Chelmsford, Topeka, Kansas 66610. (913) 478-4863.

WILL TRADE for power sailplane: 64 Cessna 150 TT 1900° SMOH 500. Full panel cert both doors quick release, owned and hangared 9 years by D. Toshich (313) 729-8857; 36119 Fernwood, Westland, Mi. 48185.

NELSON *DRAGONFLY*. Just restored, now flying with modern Rockwell engine, S.T.C. in progress (presently experimental), two-place, retractable tricycle gear, electric starter, good instruments and trailer. $5500 buys this classic motorglider; 1-3/4 Nelson engines; and Rockwell spare parts. R. Seals, 5592 Spencer St., Las Vegas, Nevada 89119.