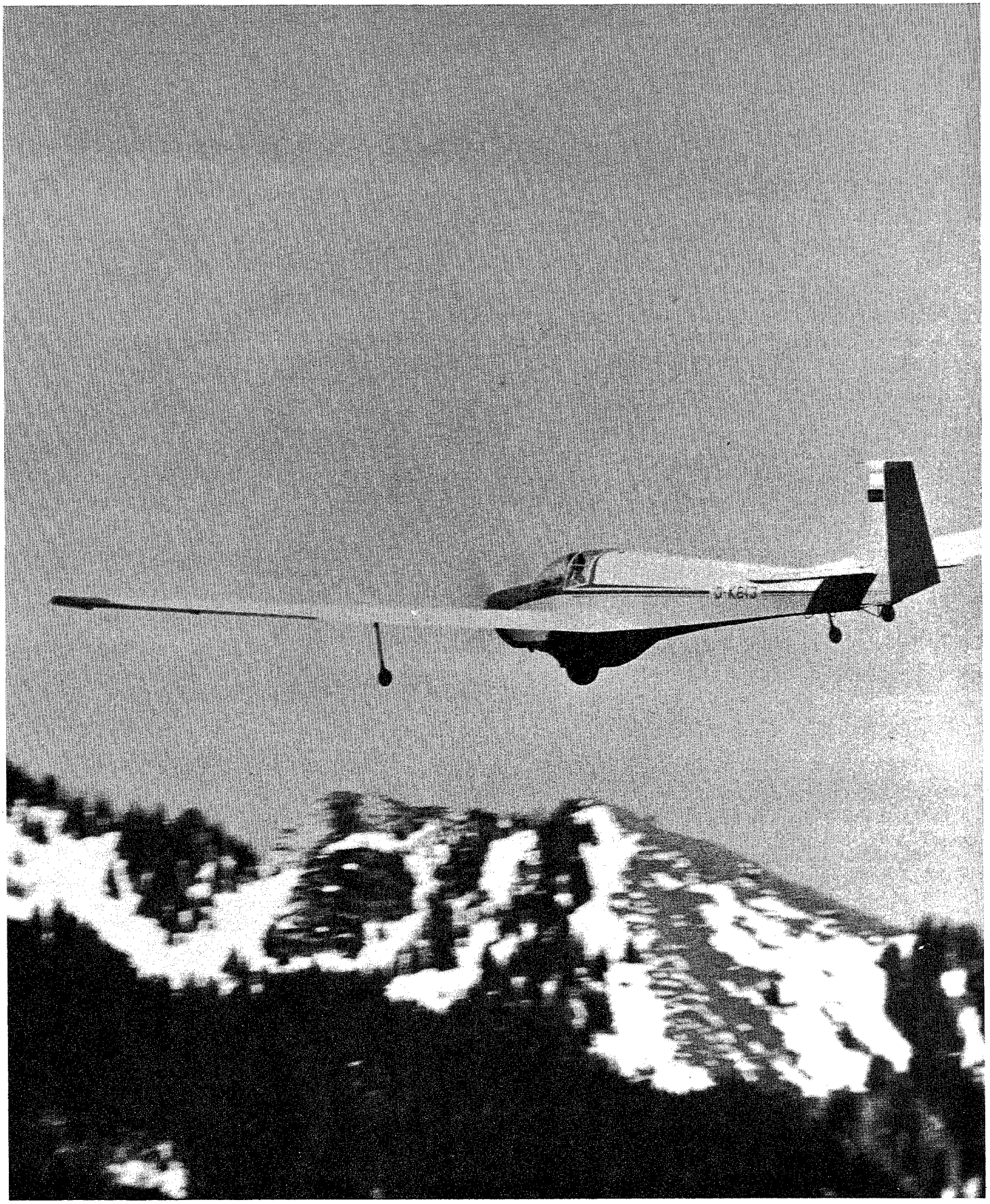
MOTORGLIDING

JUNE 1973



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RF 5 B

Type	Span	L/D	Cost*	Delivery	Seats	HP	Engine	Rt. Sink
RF-4D	37 ft	20	DM 33,600	6 month	Single	36	VW	4.0 ft/sec
SFS-31	49 ft	29	DM 37,800	6 month	Single	36	VW	2.8 ft/sec
RF-5	46 ft	22	DM 50,400	6 month	Dual	68	VW	4.6 ft/sec
RF-5B	57 ft	26	DM 52,390	6 month	Dual	68	VW/Frank	2.8 ft/sec

Standard equipment includes: Airspeed indicator(s), Altimeter(s), Variometer(s) Magnetic compass, Gear warning light and horn, Safety harness(s), Seat cushion(s), Tail antenna, Cabin vent(s), Recording tachometer, Oil pressure gauge, Battery, Oil temp. gauge, Ammeter, Starter (elec.), Exhaust silencer(s).

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MOTORGLIDING

Elena Klein, Editor

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Contents

Cover: SF-25B, by Dr. Joseph H. Lorber

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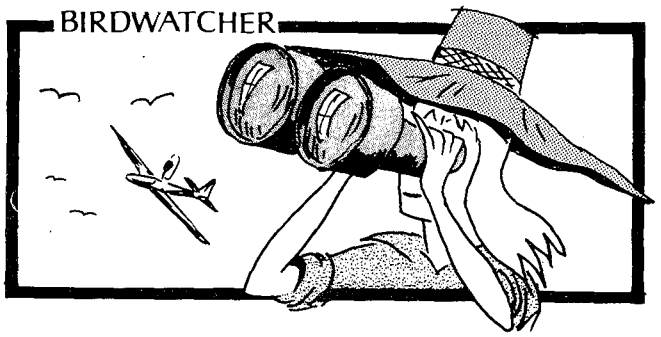
Back issues are available at $0.50 each. All of 1971 are available except for July, September, and December; only March and May of 1972 are available. (No issues were published between May, 1972, and January, 1973.) All of 1973 are available.

Circulation of the May 1973 issue was 1090.



There are (roughly) two approaches to the proposition of designing a powered glider—the scientific and the intuitive. Birdwatchers tend to be intuitive. (Why can't you...? and There must be a way...) Institutions like M.I.T. are scientific. (Formuli...data...wind tunnels...statistics...) This month we are presenting both approaches in the hope of generating feedback. We suspect Dick Henderson of using the intuitive approach and putting the burden of proof on whoever decides to implement his proposals. M.I.T. uses the scientific approach. And we leave it up to the reader to evaluate both and *send us your evaluations.*

SOMETHING TO LOOK FORWARD TO: STAN HALL OF *CHEROKEE* fame has promised us an article on building a motorglider. JACK LAMBIE reports that—"We've done some exciting motorgliding," and has promised us another episode of The Adventures of Jack and His Flying Machine. Goody! Ian Strachan's presentation to the M.I.T. Proceedings, The HIGH PERFORMANCE MOTOR GLIDER AND ITS APPLICATION IN COMPETITION FLYING, is complete (24 pages) in the second edition of the Proceedings. We are reprinting his Introduction.

Two of the pioneers of motorgliding are old friends of the Birdwatcher so we couldn't resist bragging a little and besides we thought that for all you have read about the *HUMMINGBIRD* you might like to know a little more about the men who dreamed it up, (intuitively?) and then applied a gread deal of scientific know-how to making it a reality.

LETTERS TO THE EDITOR

April 22, 1973

Dear Ed:

Your latest issue of *MOTORGLIDING* is indeed worth the price, (excluding the front and first inside page). It has more meat and potatoes than some of the previous issues. It seems that we are in a second stage of the self-launching sailplane movement. Things are starting to take shape, the movement is starting to take hold, we start being mature and accepting the concept. Beware! We have a long way to go. (We love Jack Park who started this fine magazine.)

It is not the intention of this writer to again dare to upset our purist; we merely intend to bring out the facts as we have experienced them in the last six years. We feel we do not want to express any royal claims as distributor or dealer of the product line but state the facts and thus give sound information on the state of the art to the reader and perhaps the prospective buyer.

First and foremost how does the FAA look at the movement? My impression is this: The FAA is there to serve the people; it is an institution and a government body to protect and serve the flying and non-flying populace. Rules and regulations will only be issued then if the trend so demands. I sincerely believe we will have acceptable rules and allowances within 12 months of this date. At present we have had no unacceptable restrictions or limitations in development, interest, and growth of this self-launching sailplane movement.

With forty units now in the U.S.A. and Canada, single seat, two seat, tandem, side-by-side, open class, standard class, training, we can speak with some authority.

One needs to start somewhere; we found the RF-4D to have the right concept. It is mobile, self-contained, economical, docile, reliable, responsive; not only a little of everything, but a little *more* than everything. I made a 128-mile cross-country soaring flight without shaking the whole trip. Outclimbed my friend's 125 HP

(continued on page 11)

SELF-LAUNCHING SAILPLANE D-39

By Wilhelm Dirks
Akademische Fliegergruppe,
T.H. Darmstadt, W. Germany

Introduction

A powered glider should fulfil the following demands:
1. Soaring performance should be nearly as good as that of similar sailplanes.
2. Under power it should have a short t.o. distance, a good climbing speed, and a good cruising speed.
3. It should make little noise.
4. It should feature simple handling.

Configuration choice

Some examples already constructed and flying will now be discussed.
1. Engine installed in the front, fitted with a feathering propeller (SFS-31, AS-K14). The cooling air intake is at the nose.
2. Retractable engine and propeller (SF-27M, D-37).
3. Ducted-fan in the rear fuselage (*Sirius*).
4. Tailless aircraft with a propeller behind the trailing edge (AV 36, FS 26).

Critical examination of these concepts gives the following results:
1. A front engine installation yields relatively simple construction and handling. The cooling is good and an effective exhaust system can be fitted. The propeller diameter can be as large as necessary when a retractable main wheel is used. Fitting of a drive is possible. Using all these possibilities optimum performance under power and low noise can be obtained. However, having the cooling air intakes and the propeller in front—even when it is feathered—produces so much drag that the gliding performance is unsatisfactory.
2. Retractable engine types guarantee gliding performance as good as those of sailplanes of similar configuration, but performance under power is comparatively poor. The drag increase of the D-37, for instance, is 40% when the engine is swung out. Problems arise for the engine section, which has to be quite small and of very low mass. A propeller of optimum diameter, a drive, and an effective exhaust system can hardly be accommodated in the fuselage of a high-performance sailplane. Because of the complicated mechanism of this configuration the reliability of operation is unsatisfactory.
3. The static thrust of a ducted-fan is too small. The gliding performance is poor because the duct adds drag.
4. Soaring performance of a tail-less glider is always smaller than that of a similar aircraft with a tail-plane. Longitudinal stability is often unsatisfactory.

We can see, after this discussion, that a configuration with the engine in front might be optimal for a powered glider, if, during gliding, the propeller is folded away and the cooling air inlets are closed. Thus the D-39 powered glider will have a propeller which folds completely into the fuselage through openings closed by covering flaps. The engine (36-hp Hirth 017 snowmobile engine) has a cooling fan so that it can take the cooling air from the propeller openings, which remain open in powered flight. No further openings are necessary. Thus it is possible to construct a fuselage of high aerodynamic quality as shown in Figure 1.

The D-39 will be of fiberglass construction, with 15-m wing span, aspect ratio 20.5 and Wortmann laminar flow profile sections FX61-184 / FX61-126. Propeller speed is reduced by a cog-belt to half engine speed. The propeller diameter is 1.25 m (Figure 2).

Calculation of gliding performance

Gliding performance of the D-39 has been calculated using a digital computer. The results of this calculation may be compared with that of the high performance sailplane D-38 which has the same wings and tailplane as the D-39: The drag of the fuselage (Figure 3) will be only 7% larger than that of the smaller D-38 fuselage, if it is possible to have a laminar

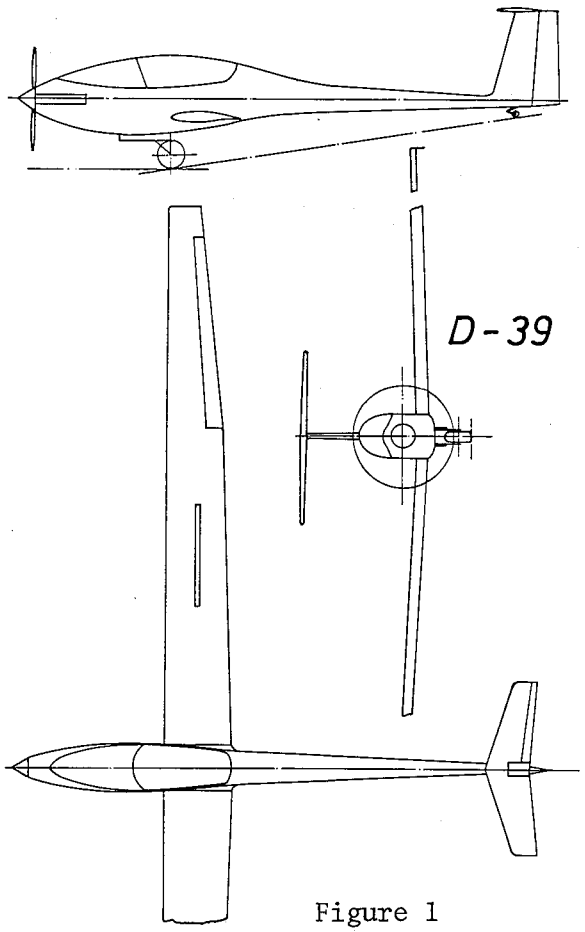
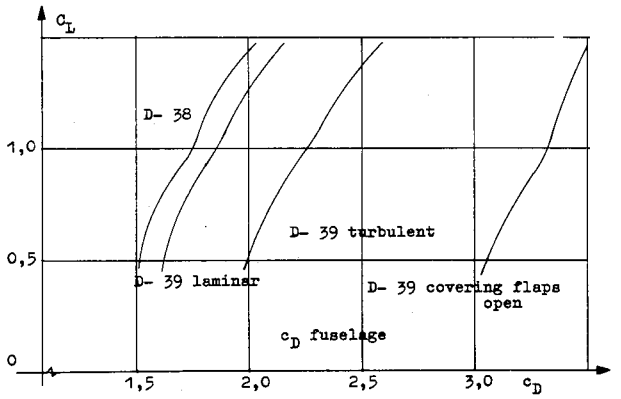


Figure 1



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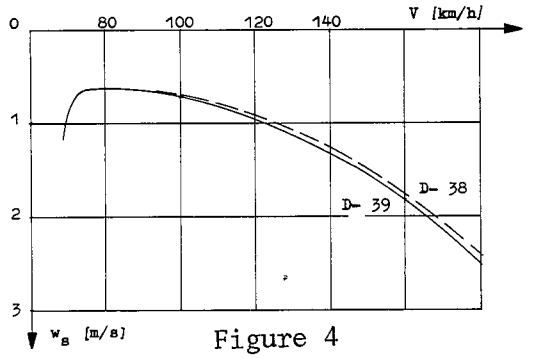
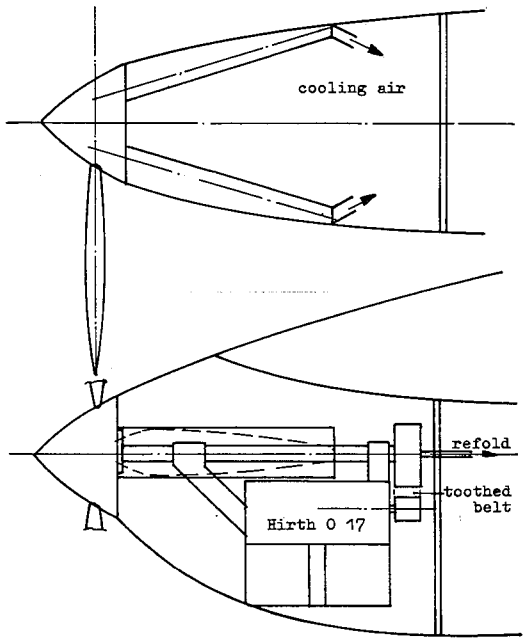


Figure 4



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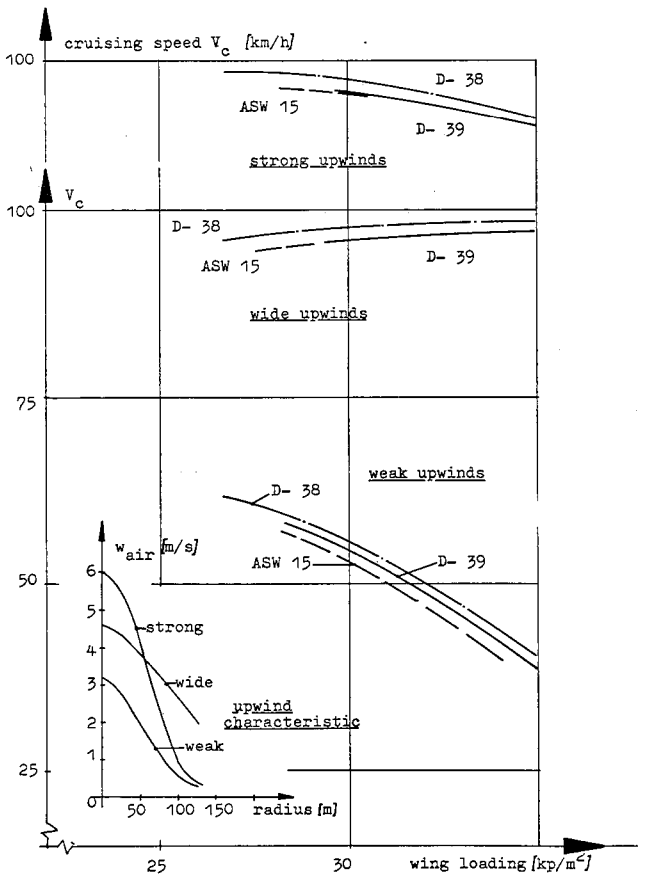

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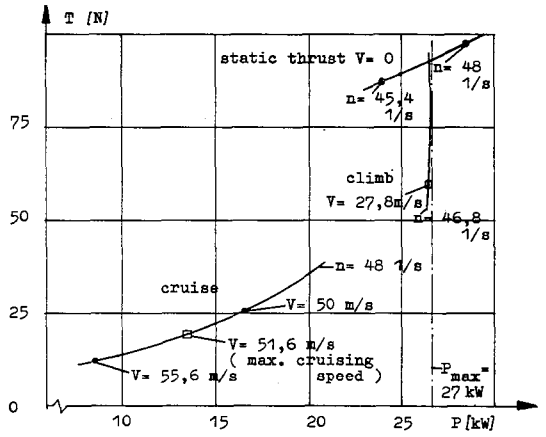

Figure 6

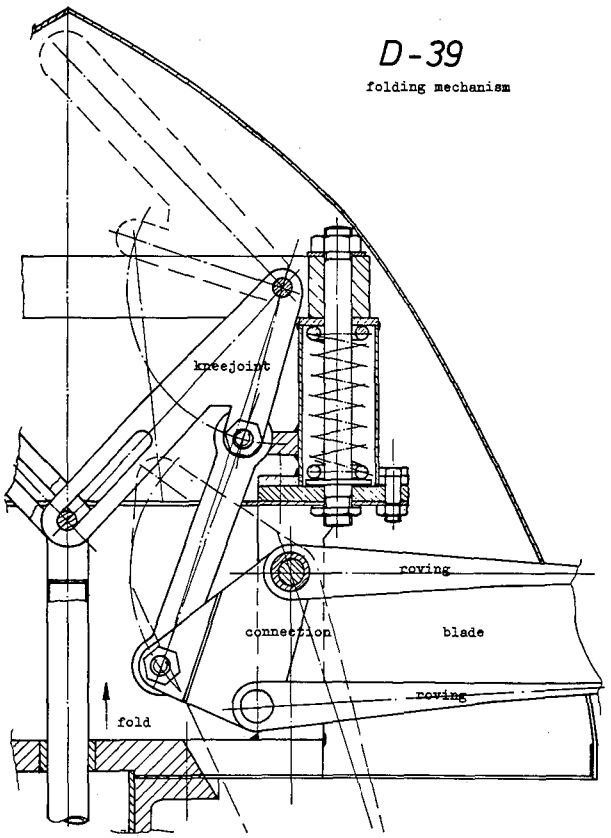

Figure 7

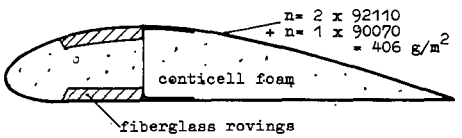

Figure 8

boundary layer on the front part. However, it is probably not possible to keep laminar flow beyond the spinner. Thus further calculations are done assuming a turbulent boundary layer. The drag is 25% greater than that of the D-38 fuselage. However, the air speed versus sinking speed charts show that the performance of the powered glider is nearly as good as that of the sailplane (Figure 4).

The best method to compare the performance of sailplanes is to calculate the cross-country cruising speed. This was done using a digital computer. Figure 5 shows the cruising speed calculated for the D-39, the D-38 and the standard class sailplane AS-W 15. The cruising speed of the D-39 is only 3% to 5% lower than that of the D-38 and as good as that of the AS-W 15. If lift is very weak the D-39 is inferior to the sailplanes because of the minimum wing loading of 29 kg/m^2. (In this case sailplanes normally cannot continue their cross-country flight and have to land. Then the powered glider, of course, is superior.)

Design of an optimum propeller

Using Reference 1 it is possible to choose the optimum propeller diameter, speed, and blade loading for static thrust, climb and cruise. Using these results a propeller for optimum climbing speed was designed using Theodorsen's propeller theory (2). The result is a C_L vs b distribution, which completes the blade data required. Clark Y profile sections were chosen for the D-39 propeller.

Calculation of performance under power

The calculation of the thrust for various airspeeds was done using the theory of Betz (3, 4). This calculation was also done using a digital computer. The results are plotted in Figure 6. The cruising speed is 51.6 m/s at a propeller speed of n = 2880 rpm. Rate of climb is w_s = 3.60 m/s at an airspeed of V = 27.8 m/s and a propeller speed of n = 2810 rpm. Static thrust is T = 925 N at a propeller speed

of n = 2810 rpm. This performance under power is better than that of current powered gliders of similar configuration.

Design of the propeller blades and folding mechanism

The propeller blades will be made of the fiberglass reinforced plastics. The advantage lies in the smaller weight by comparison with wooden blades. The fiberglass rovings of the blade are used for the connection to the hub also, without need for additional material. Figure 7 shows the connection. Figure 8 shows the construction of the blade. Torsion is taken by a fiberglass laminate with the weave directed at 45 degrees to the centerline of the blade.

The blade folding mechanism (Figure 7) is operated by the pilot when the propeller has stopped rotating. In operational position the propeller blades are fixed by a knee joint. Centrifugal forces add to the kneeing action.

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(From *Proceedings of the First International Symposium on the Technology and Science of Motorless Flight*, Massachusetts Institute of Technology, October 18-21, 1972.)

THE HIGH PERFORMANCE MOTORGLIDER AND ITS APPLICATION IN COMPETITION FLYING

By Ian Strachan

Introduction

The author argues that the pattern of high performance motorgliding in the future will be set by the next generation of designs reaching the gliding movement. This may in no small measure be influenced by the contest rules approved by the CIVV for the first world Motorglider championship which will define whether engines will be allowed to be used extensively, or whether they will be regarded simply as aids to prevent field landings. This paper gives a design specification for a high performance single seat motorglider (HPMG), a suggested draft for CIVV Motorglider contest rules, and a list of the additional British Gliding Association (BGA) rules that at present enable motorgliders to take part with gliders in BGA contests. Perhaps the biggest factor which presently holds up HPMG development is the lack of a suitable engine. All motorglider enthusiasts should scan the lists of commercial engines for those with power outputs of 35-50 bhp at high power/wt ratios, and write to their soaring magazines (and the glider manufacturers) with details of likely units.

All glider pilots who find themselves interested in owning the HPMG of the specification described in the paper should make their views known loud and clear to the glider manufacturers. Similarly CIVV should receive as many inputs as possible through national representatives before final decisions are made on contest rules. The author argues that we must ensure that motorglider contests are won by *soaring* in high performance *sailplanes*, and not by indiscriminate use of engine in 'compromise aeroplanes' that do not soar very well but have superb engine-on performance.

(From *Proceedings of the First International Symposium on the Technology and Science of Motorless Flight*, Massachusetts Institute of Technology, October 18-21, 1972.)

SO WHAT ELSE IS NEW?

by Elena Klein

The mourning dove's plaintive hroo-hroo, the rustle of wind in the tops of the eucalyptus trees, the whistle of a homing glider on the downwind leg—these are the gentle background noises punctuated by friendly voices and the occasional busy rattle of the little tractor or the rumble of sliding hangar doors. Then the calm is shattered by a piercing whine. Is it a monster model airplane engine? A speed boat? People come out of the hangar or lounge to watch an old familiar show. The *Hummingbird* is taxiing up to the line. It rolls briskly under power, rotates into position as its wing-tip wheel draws a smooth arc on the hardtop. The Nelson engine revs to a fiercer whine and the ship starts its brief takeoff run, lifts off and diminishes audially and visually into the distance. The watchers drift back to hangar, lounge, and glider trailer.

To the members of the Northern California Soaring Association the above scene is a familiar one but one they seldom fail to observe. I have watched the scene for over fifteen years but—to my own embarrassment—without realizing that I was watching the wave of the future. Not until I became associated with *Motorgliding* did I become aware that Ted Nelson and Harry Perl had accomplished twenty years ago what so many engineers and designers were currently attempting—a self-sufficient glider! No Women's Libber, I have still not reconciled myself to a sport, the sport of soaring, that is enjoyed by one person at the expense of so many, the expense of time, energy, and equipment to the exclusion in many cases of most other forms of entertainment. I could be reconciled by the Nelson *Hummingbird*.

The *Hummingbird* gave its name to Hummingbird Haven situated at the foot of Altamont Pass east of the town of Livermore, California. There is the most comfortable and accommodating glider site I have ever visited. With its swimming pool, barbecue pit, picnic tables, swings, and comfortable lounge and clean bathrooms it deserves a story of its own. All these of course, besides the well-drained, well-surfaced runway, tow plane, and tractor; and ridge, thermal and occasional wave soaring.

But my story today concerns motorgliding and the two men who solved the problem of soaring *sans* crew and launch facilities. *Motorgliding* readers have seen the *Hummingbird* or read about it and know its history. (See July 1971 *Motorgliding*). Members of NCSA and PaSCo have long been familiar with it. Two *Hummingbirds* are at home at Hummingbird Haven. Les Arnold nests his *Hummingbird* at Brownsville in the Sierra foothills.

Any weekend morning at Hummingbird Haven Ten Nelson ambles down the lane from his home on the northeast corner of the field.

"Guess I'll go upstairs and see what's cooking," he says, squinting at the sky. He is a tall lean man, fair as his Scandinavian forebears, affable and easy to talk to once you have earned his respect and trust; formidable if you are careless about rules. After discussing the weather, how it was yesterday, and what might be expected today, Ted goes to the hangar, pulls out his ship and inspects it. No need for any assistance as he prepares for a flight. He climbs in, fastens harness and belts, pushes the starter button and taxis to the flight line for takeoff. Ted does this almost daily. His wife Alice waves him off morning, noon, or evening. Perhaps she watches out the kitchen window when she hears the *Bird* taxiing up to the line. She won't hear him land unless it is a quiet weekday when she might catch the rustle of the landing wheel on the hardtop.

Ted can tell by the sound of the wind during the night, the temperature, and the color of the sky whether there is likely to be a wave off Mt. Diablo. Or he may go hunting down on Cedar Ridge to the south end of Livermore Valley. He'll chuckle as he tells you that yesterday he got to 17,500—or even 19,000 on rarer occasions.

Ted was reporting such a flight one day in the lounge when a young glider student innocently asked, "How many times did

you use the engine?" Ted fixed him with a withering glance. "You don't understand gliding or you wouldn't ask that kind of question," he answered. If Ted wants to fly under power he flies an airplane.

Ted keeps in radio contact on his hunting expeditions. If he has found a wave he directs other pilots to the site. If there's "nothing up there" he lands, rolls up to the hangar, and shoves the *Bird* into its slot. No sweat, no assistance needed. He stops to chat and report on conditions then goes off up the lane to check in with Alice.

Harry Perl doesn't live at Hummingbird Haven. It justs seems like it. He is there before anyone else Saturdays, Sundays and holidays, and among the last to leave. Harry lives in Livermore. He stops off at the Rad Lab to collect weather data. He makes up a profile of the weather, soundings, winds at different levels, and pins it on the bulletin board in the lounge. He is a day ahead of the weather maps. He checks out the towplane—and everything else—and if it seems worthwhile pulls out his *Hummingbird* and tests out the area or confirms his earlier findings.

Harry designed and built the *Penetrator* (20 years ahead of its time, say some glider guiders) and worked with Ted designing and building the *Hummingbird* and its forerunners, the *Bumblebee* and the *Dragonfly*. Harry is energetic, vigorous, forthright. Like Ted he is intolerant of carelessness and rulebreaking but he is generous with technical advice and counsel. For many years he was field manager of Hummingbird Haven. It is a measure of his indefatigable capabilities that it took five members to replace him as field manager when he relinquished the title.

Harry does not readily commit himself about the new motorgliders. He talks about light power planes, the costs of jet-assisted gliders, and performance figures. "As to the future," he wrote in *Motorgliding*, "The big problem is economic, not technical, in providing a satisfactory self-launching sailplane. The technology to produce a high-performance machine is well within the state-of-the-art. The major problem is to provide a sound, properly financed development and production project."

As often as I had seen the *Hummingbird*, I had never thought to ask for a ride in it. Several years ago my husband took off from Hummingbird Haven in the first flight of his homebuilt HP-14. We watched him until he released at about 2000 feet over the field. Harry had given the Fourteen two auto-tows just a couple feet off the deck before clearing it for an aerotow.

"D'you want to go up and wave to Sherb?" he now asked.

"Sure!" I answered. "What in?"

"The *Bird*."

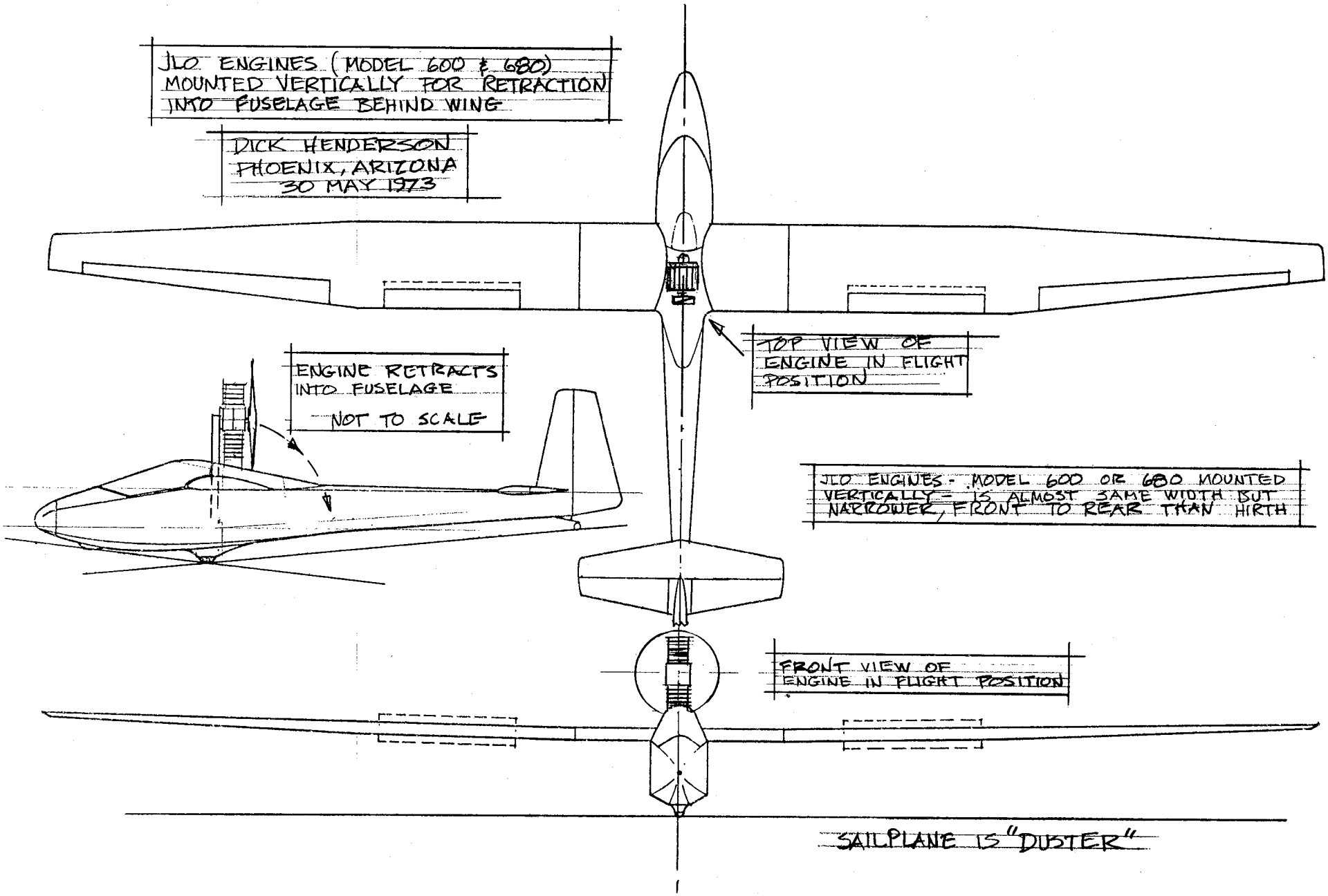
Great! Harry's *Hummingbird* was sitting alongside the hangar. I climbed into the back seat. Not roomy, by my claustrophobic standards, but more comfortable than the Pratt-Reed or the TG-3. Harry did some checking and climbed in. I remember seeing him pull a string. There was an explosion of noise from the Nelson engine behind me. The taxi and takeoff were quick and smooth. Conversation impossible. We circled Sherb at a comfortable distance, close enough to see his delighted smile inside the shining bubble of the -14 canopy. We circled again then we headed south. I had become adjusted to the high drone of the engine when suddenly it stopped. We were airborne—no longer under power.

We flew for an hour. It was a "good" day but not "spectacular". We caught a couple of thermals, enough to fly over the reservoir and back to the field with around 3,000 feet to spare. It was the most comfortable and longest soaring flight I had ever made. The best part of it, of course, was being able to share at least some of Sherb's elation. We entered the pattern, dropped smoothly onto the runway and rolled gently up to the hangar.

That all happened two years before I became involved with *Motorgliding*. So what else is new? Well, it seems to this inveterate birdwatcher that surely motorgliding isn't.

JLO ENGINES (MODEL 600 & 680)
MOUNTED VERTICALLY FOR RETRACTION
INTO FUSELAGE BEHIND WING

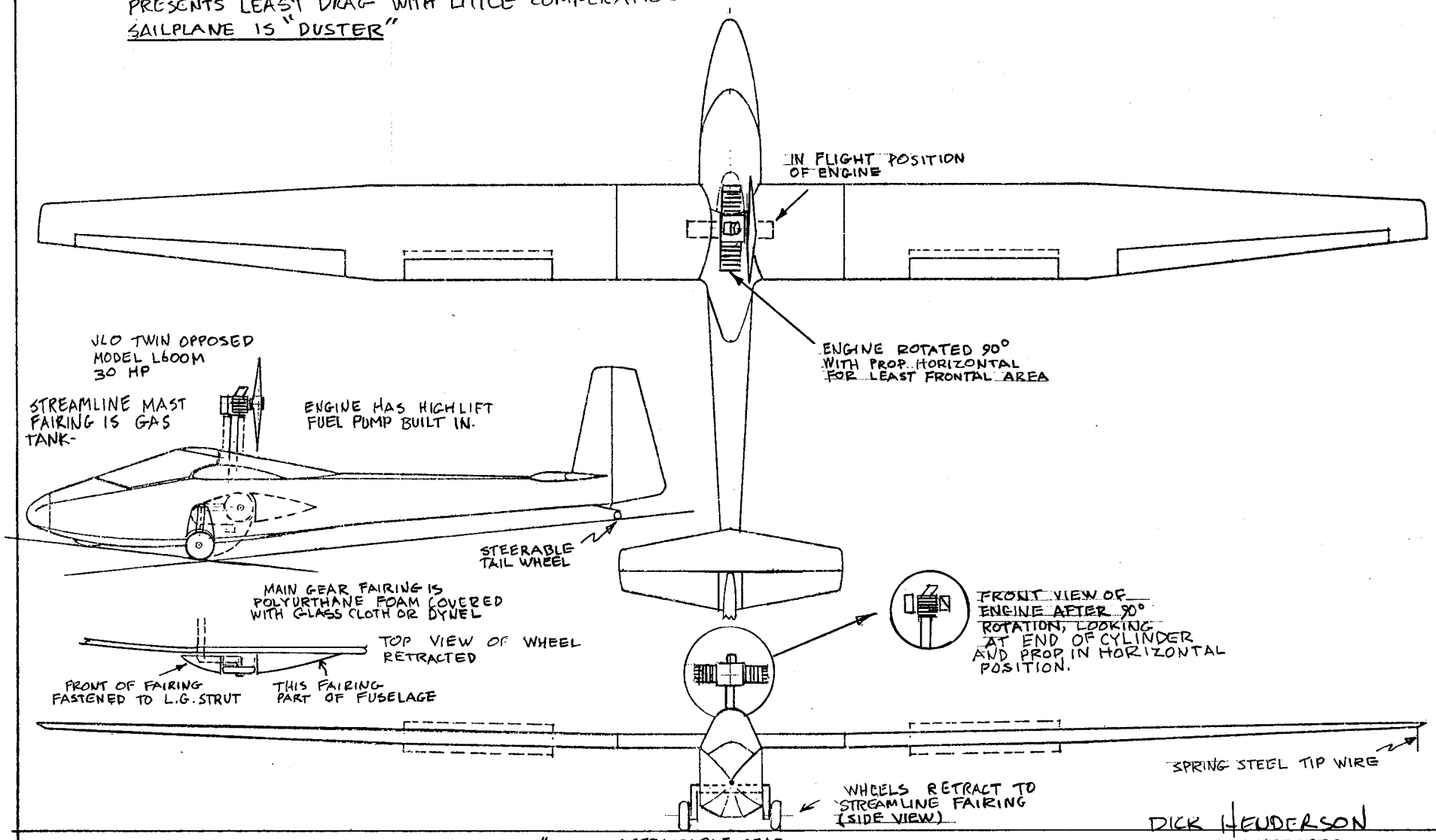
DICK HENDERSON
PHOENIX, ARIZONA
30 MAY 1973



SUGGESTED METHOD OF USING A MAST MOUNTED 30 HP JLO OPPOSED TWIN THAT CAN BE ROTATED 90° AFTER REACHING DESIRED ALTITUDE WHEN ENGINE IS STOPPED AND PROP IS POSITIONED IN HORIZONTAL PLANE - PRESENTS LEAST DRAG WITH LITTLE COMPLICATION.

SAILPLANE IS "DUSTER"

THE JLO 30 HP OPPOSED TWIN IS AVAILABLE WITH MANUAL OR ELECTRIC START AND IS RUN AT MAX RPM OF 4500 - CRUISE OR CLIMB PROP IS OPTIONAL.



26" TREAD RETRACTABLE GEAR TO ELIMINTE NEED FOR GROUND HANDLING PERSONNEL

DICK HENDERSON
18 JULY 1972

LETTERS...(continued from page 2)

Swift, passed up many a 150, 140, very well known trainers—not to name our powered brothers. Flew in all kinds of weather, VFR preferred, did my soaring during lunch hour and after 5 pm. I went to see how the soaring was in other places and could still be home for supper and take out my ex-crew for dinner. Why was all this possible? Well, utilization, the only way to reduce costs. This was only the start of things to come, for me as well as for 40 other satisfied pilots.

The SFS-31 showed a fast improvement in soaring ability over the RF-4D. The RF-5 again gave a little more of everything. It showed the non-believing power pilot what soaring was all about; it showed the not-so-hep glider pilot that soaring cross-country does not need to take risks nor involve a lot of commotion.

Then there came the RF-5B which has real total utilization of soaring flight and power flight. There is good to very good soaring performance, good to very good to very good cross-country ability, power on or power off. It will allow you to get out of the high-density areas and enjoy flying as you used to. The family is still able to participate and enjoy it more than ever. Training is practical, economical and justifiable for both fields of flying. Motorgliding will allow the power pilot to venture into soaring without losing his mobility. It will allow the new soaring pilot to venture on a cross-country—a thing of sheer terror in the past. The RF-5B can be considered the total concept. Its folding wings make it easy to hangar, it can be flown when the soaring is not so good, it gives total utilization year round. A sink rate of 2.8 ft/sec is not all bad; it has allowed us soaring flights of 3 to 4 hours in this part of the country already this year.

Ann Welch always does an outstanding job on reporting the new things as well as staying fair in comparing the apples and oranges—or whatever she is reporting on. I have flown both the AS-K16 as well as the SF-28. Naturally we have more experience with RF-5B and therefore a direct comparison is not available. Neither did we count the bugs on the leading edge. We will attempt to give a description of the RF-5B only along the same lines as reported on the SF-28 and AS-K16 by Ann Welch

The RF-5B is an excellent 2-seat motorglider; it was so designed and it has lived up to its expectations. It is fitted with the Sportavia-Limbach SL 1700 E 68 HP at 3400 rpm VW engine. The propeller is a feathering Hoffman with additional positions for climb and cruise. The single 600-6 tire and wheel with hydraulic-over-air shock gives very fine landing control and is fully retractable. The fuselage and main wing spar are protected by two small ski-runner type slats which prevent *all* damage when landing gear-up (we have proven this already). The handling is excellent, also the 360° omni cockpit view. Takeoff and climb are at 500 ft/min and this with two people aboard at 1150-feet elevation. (Note: we had our unit in Colorado Springs at 7200 Ft. elev. We noted about 320 ft/min climb at 40° F. The runway has some downhill slope and takeoff roll was not measured.) The electric starter produces instant inflight restarts and with our 200 hours there has never been any problem hot or cold. The RF-5B is a really delightful machine and probably one of the nicest and safest aircraft a club or private owner could own. It is, however, expensive to purchase compared to a regular sailplane. We feel it is not at all too complicated for a basic school trainer. Gear-up landings are not recommended but *ours* have cost nothing but pride. (They occurred with engine off and prop in horizontal position.) The gear warning system is more than adequate and works independently from the throttle and the airbrakes.

The airbrakes are very effective. Instruction from the back is very effective and full control over the unit is possible since all controls are duplicated. The folding wings of the RF-5B are an outstanding feature. The unit can be handled completely with one person on the ground inside or outside close quarters.

...If there is anything we can do to help you please let us know...You will hear more from us...Thank you again for your fine February issue.

Sincerely,
H. G. A. Buytendyk

May 23, 1973

Dear Ed:

I suspect one reason that self-launched sailplanes are not numerous is that few pilots have seen them in operation, and that even fewer have flown one. Such is my case.

I first saw one fly at Estrella, on April 17, this year. The pilot (I assume he was Col. Barrett) simply wheeled his ship out of the hanger, cranked it up, and left. This may have been preceded by hours of preparation, but "locals" told me the gentleman did this almost every day.

Very impressive. For the last 20 years, soaring has always meant about four hours of panic on the ground for every hour in the air. Most older sailplaners have willingly paid the dues—trailering, waiting for mysterious towplanes which never appear, crazy off-field landings, boring retrieves, etc.

I live 200 miles from the nearest reliable towplane. Competition and badges no longer interest me. A self-launched sailplane is an obvious answer, but I doubt I will ever get to own one.

Purchase cost is a real bummer, but soaring has never been cheap. I have never dared calculate the cost per hour for conventional soaring, but I suspect self-launching would be much cheaper, if everything is considered.

Getting hands on a self-launched ship can easily be done by inheriting a large mess of money. Financing an approved-type ship is almost impossible; who will put up the loot for an "x-rated" machine? No one I know.

Almost any really-determined nut can somehow get a well-used 1-26, or equivalent, but I have seen very few self-launched ships for sale. Ten years from now, the situation may be different; I hope I am still around and flying.

Every "grass roots" level FAA inspector I have ever met has treated me well; I can not praise these men enough. But the bosses, way up on the "policy" level, seem to embody the worst features of the Gestapo, the S.D., and Attila's Huns. No doubt they can make the sum of restrictions on powered sailplanes exceed the total on power and sailplanes.

The normal airport operator would probably welcome more an Aero-Commander fresh from Mexico with 1,000 bricks of Acapulco Gold. Sailplanes don't use much gas; they are just useless clutter. Self-launchers don't even use towplane gas.

This "Jeremiad" is probably brought on by age (geriatrics arise!). Every moment spent actually soaring is worth more now than it used to be.

I remain an outsider on self-launching, but I hope the various schemes fulfill the promise they now seem to offer.

Sincerely
Allison Stout
Box 162
Hurley, N.M. 88043

Dear Al:

I know, I know...I know how you must feel 200 miles from a towplane. Something like a loyal crew wife feels on a dead-end dirt road in an overheated car with four hungry thirsty quarreling children and a glider-trailer on her tail and a squawking unintelligible radio drowning out the sounds of a hot desert wind. Is home-building the answer? It'll keep you busy for a few years during which a towplane might move closer. How about winch or auto-tow? Meanwhile keep an eye on Schreder's HP-17.—Ed.

May 15, 1973

Dear Ed:

Bennett's idea that the barograph will prove whether a starter went under the gate is of course correct. Also consider how you will feel after "winning" or even placing high, to be told "Sorry old boy, you didn't quite get under the gate." Sad. And slightly too late.

Regards
S. du Pont
160 Long Meadow Rd.
Fairfield, Ct. 06430

Dear Ed:

Many thanks to you, George Uveges, and *MOTORGLIDING* for publishing so many fine pictures of "N-SOAR". It really made the 4,000 mile round-trip worthwhile. Now that the weather here is nice, I am flying every weekend and I am working to get my Silver Badge down here in New Orleans. I have made the altitude here several times, but without the barograph. Now I carry it at all times. We now have a commercial

and club sailplane operation here at Abita Springs, 25 miles N. of Lakefront Airport, so I am able to soar with other gliders often, seeking out thermals together.

Dick Schreder's article in the March issue was very exciting in that the need for even smaller engines than the one I have may be very feasible in light of more efficient and lightweight sailplane designs. I was also pleased to read that he plans to retract the propeller (and/or engine?) perhaps similar to the SF-27M. In some 200 flights and other hundreds of "demo" retracts, I have never had a problem with the retract system, except one, when I failed to check it down and "locked". I wish the best of luck to Dick with his HP-17.

I just tried a couple of new propellers made for me by TM Development, Box 183, Darby, Pa. 19023, and they were fantastic. The Hirth was overspeeding 300 rpm with the present prop, and the new props by TM (of 120,000 tensile strength) limit the max. rpm to 5,000 as planned with a 100 fpm or more increase in climb. At cruise, (which I could not do without much banging-about and 4-cycling) the new prop puts a sufficient load on the engine, yet is so efficient the rpm minimum at full throttle-back is up 300 rpm. Fully throttled back, she will still climb slightly previous to a 100-fpm sink with the old prop.

I am working on a brand new Engine/reduction/prop combo and I will let you know how it works out.

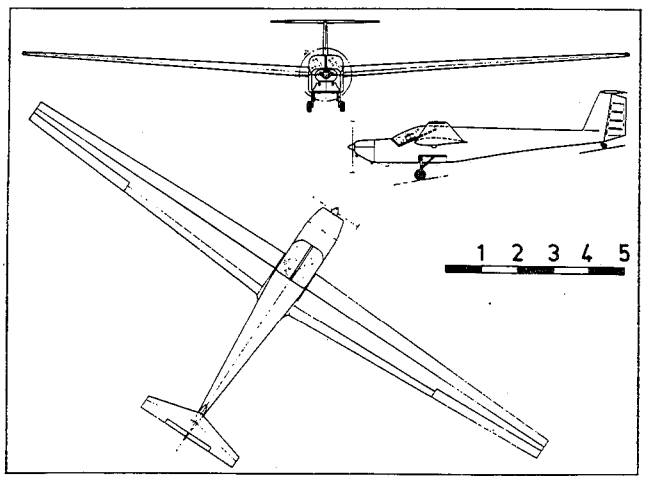
Good Soaring
Bill Mouton
2113 Cleary Ave.
Metairie, La. 70001

MOTOR GLIDER M-17 UNIVERSAL

NEW from Czechoslovakia is the M-17 two-seater motor glider which had its first flight at Brno on October 17 last. Jiri Matejcek, the designer of the Standard Class Orlice, is in charge of the project.

The seating in the M-17 is arranged side-by-side and there is a centrally mounted Y-shaped control column. The single spar ply-covered wings have a lining of sandwich polyester foam; it is fitted with a T-tail and has a retractable under-carriage.

The power unit used for the prototype is the 42hp Stamo MS 1500, and the propeller can be feathered for gliding flight. For further development and production, however, it is intended to use the 65hp Walter-Mikron 3 engine. The report in *Der Flieger*, from which this extract has been taken, also mentions performance figures for the M-17 while towing a 15m single-seater VSO-10 (no details available); the report does not state whether tows have in fact been carried out. The data given suggest that this really universal aircraft would fall within our Redhill definition of 1969 for self-launching gliders. (The definition neither includes nor excludes motor gliders capable of towing).



Technical data	42 hp Stamo	65 hp Mikron
Span (m)	17	17
Wing area(m^2)	17.5	17.5
All up weight (kg)	580	580
Takeoff distance (m)	200	150
Takeoff to clear 15m (m)	330	260
Climb Rate (m/sec)	2.5	4
Maximum speed (km/h)	180	210
Cruising speed (km/h)	150	200
Ceiling (m)	5000	6000
Range (km) *at 120km/h	450	500
Fuel consumption ltr/ph	10	9

Calculated glider performance: Glide ratio 95km/h over 28:1. Minimum sink at 80km/h below 0.85m/sec. Landing speed 65-70km/h.(Reprinted from June-July 1973 *Sailplane & Gliding*.)

MOTORGLIDING
c/o The Soaring Society of America, Inc.
P.O. Box 66071
Los Angeles, California 90066

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