

## Forward

To the readers of this report;

after sitting with my sponsor, & attending several afternoons / days at various gliderports, it has become apparent that many terms & expressions used throughout this report, may be unfamiliar to the general public. It is with this in mind that I have included the following glossary of terms used in the opening pages of this report.

As the reader progresses through the report, the familiarization with the subject matter increases and the terms used become common, the reader's understanding builds from terms.

By mid-report the reader is able to follow along the report & no longer requires the use of a descriptive term listing, & the terms glossary fades away.

It is hoped the reader enjoys this report, & comes away with an understanding of some of the history of Soaring.

Without further haste, please enjoy the following:

## Expressions Terms Used in the text:

Pg. 1

- DIAMANT - First fully composite (fibre-glass & styrofoam), certified, aircraft to be put into mass-production.
- Civil Air Patrol - American Para-Military youth program. Stressing individual personal development & Aerospace Education. An official Auxiliary of the United States Air force.
- Soaring - To fly in an aircraft designed to utilize natural air currents, to remain aloft, gain altitude, & fly for many miles without an internal combustion engine before landing.  
Also, the official journal of the Soaring Society of America.

Pg. 2

- FFA - Flug und Fahrzeugwerke, A.G. Manufacturing firm, located in Altenrhein, Switzerland, responsible for putting the DIAMANT into production. Note, if the DIAMANT were an automobile, then FFA would be the equivalent to "Shelby".
- Schleicher - German (west) sailplane manufacturer, located in Poppenhausen, Germany. Manufacturer of high-quality, high-quantity, high-performance sailplanes. Note, if their sailplanes were automobile, Schleicher could be compared to the BMW.
- Category of Airworthiness Certificates -  
In the United States there exists 2 categories:
  - Standard - Meaning the Aircraft design has been tested to identified standards, & has met or exceeded these design parameters
  - Experimental - This class has several sub-~~class~~ classes, an aircraft certified as experimental, basically means, that although the manufacturer claims a certain performance design, no standardized test program was undertaken to confirm the design
  - sub-class -  
EXHIBITION & RACING - Modifications from the manufactured standards are allowable.  
Home Built - Basically a "Kit-plane" where the builder completes over 50% of the construction.

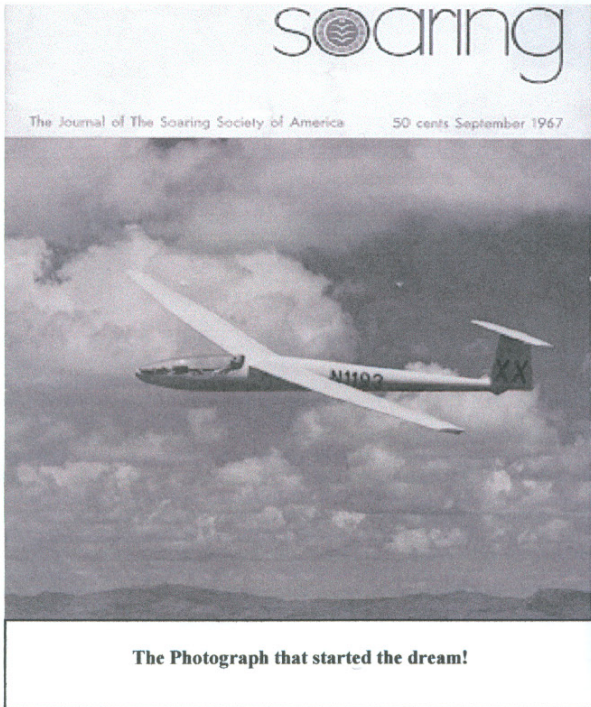
Pg. 3) "Blanks", a plug or positive relief ~~of~~ made of an object to be duplicated.  
Female Molds, in this case a hollow cavity with the negative relief of an object to be duplicated.

Pg. 4) Glaszflugel, a German (west) Sailplane manufacturing firm founded by Eugene Haulle & Wolfgang Huettler. This firm is often given the credit for producing the first certificated composite sailplane. (The Libelle 301) If this firm produced automobiles one could compare them to Mercedes.

# The "DIAMANT"

## Introduction:

The intent of this research paper is to convey information to the reader regarding the significant historical value of the DIAMANT sailplane to the soaring community and aviation in general. The following is a collection of data formulated to understand the development, history, and what it is like to "care-for" and fly one of the most pivotal of sailplane designs in the history of Soaring. It is a manager of current knowledge, and it can not be expected to cover all aspects of the DIAMANT. This paper is not perfect, but it probably is the best "single source" document on the DIAMANT.



It is important to note from the very beginning and understand throughout this paper the DIAMANT sailplane is steeped with a certain aura of design mystery. Much of what is contained in this paper is though 2<sup>nd</sup> or 3<sup>rd</sup> hand data, and based on reference material up to 39 years old and pieced together in a timeline. It is subject to personal interpretation by both the writer and the reader. The only 100% accurate accounting contained herein is for serial number 012, over the course of the last seven years. ←

To start with, I open with a prelude on my advisor's personal "love affair" with the DIAMANT. In March of 1970, while attending a regular meeting of the local CIVIL AIR PATROL unit, he was taken under the wing of one of the many flight instructors, who was very active in Soaring. After about two months the instructor gave my advisor many of his back issues of 'Soaring' Magazine. The September of 1967 issue, featured George Moffat flying his brand new DIAMANT.

After laying dormant for 23 years, in June of 1993, my advisor's dream of owning a DIAMANT was on the horizon.

After about a year and a half of half-heartedly, chasing down a few leads, one of the few examples in the United States became available, from a gentleman out in the LA area. After many long distance phone calls, he loaded up the car, and headed west! Now, somewhere along one of the many calls to the coast, information was passed that this DIAMANT was the very ship George Moffat flew in the '67 Nationals, or the one that was on the cover all those years ago!

The following is extracted from discussions at the "30th Anniversary Festival for the DIAMANT" with the two surviving designers of the aircraft. Also included are updates, from discussions with Dan Peirson (the undisputed DIAMANT Guru in the United States). Who took the time to update, correct, and modify the original manuscript and, added a few elements, which make it (the history), even more interesting and confusing to follow and understand. Additional excerpts are taken from the personal records of my advisor, who had prepared probably the most complete recorded history of the first fully composite, type ~~stand~~ and certificated, aircraft to be put into mass production

Standard



sailplane  
The "DIAMANT"

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The Journal of The Soaring Society of America 50 cents September 1967



The Photograph that started the dream!

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Type Standard certificated



30th Anniversary Festivities for the DIAMANT, hosted by D. Peirson of InnerCity Soaring, with T. Bircher (left) and J. Van Voornfield (right)

SEE opening statement on original Mark-ups

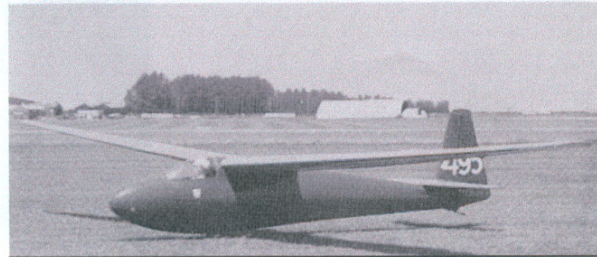
### The Good:

The design started as a college experiment, in 1960, at the Swiss Federal Institute of Technology in Zurich. Its' purpose was to determine if the (at that time) new composite materials could be safely used in the construction of a modern, competitive, high-performance sailplane. Several attempts had been made previously, both in Switzerland and in Germany. These designs incorporatel the use of composites, but none had used composite material for the entire structure! (They had always sandwiched Balsa, Plywood or other woods between the layers of Fibreglass Reinforced Plastic.) The names of the students (actual designer's) and the professor which the students were taking direction from, and who were responsible for what was to become the DIAMANT are as follows:

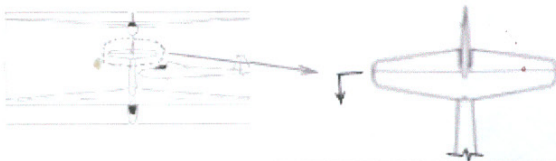
- Professor Rauscher - (Lead Responsible Engineer {made sure students did not kill themselves during the development}- his first name is not known at this time)
- Thomas Bircher - (Driving Student {Research and Coordinated efforts of the team})
- Jurg von Voornveld - (Student {responsible for design of the fuse. and tail plane})
- Wolfgang Huetter - Original Wing Designer (See "Historical Developments below) Not associated with the institute team.
- Other students were involved with the construction efforts, however their names remain lost to time.

It is important to remember that this was a college experiment, the students involved in the project were students! They were 20 to 23 year old kids, out to have a good time, and learn what they could! They were not out to set the world on fire with a new standard for the manufacture of "High Performance Racing Sailplanes!" To highlight this fact, after FFA (Flug und Farzeugwerke, A.G., the commercial manufacturer) took over the project, the students had little to no further design contact or input with their creation!

In fact, until the first "30<sup>th</sup> Anniversary Festival", in Europe, (there were 3 separate festivals) they (the designers' had not sat in or seen a DIAMANT in many years! They were extremely surprised that so many (of their *DIAMANTS*) were still in existence, and so many owners still believed in their design! It should also be noted, that the designers', however proud of the *DIAMANT* they may have been, had nothing to do with the organization for any of the three, "30<sup>th</sup> Anniversary Festivals", held Worldwide! These were organized by the owners (past and at that time, current).



Schleicher Ka-6 used as a design basis and cannibalized for the DIAMANT project.



Stabilizer of the Ka-6

### Historical developments:

The work and final results of this project had some humble beginnings and can trace its' heritage back to a Schleicher product. That aircraft being designed by Dpl. Rudolph Kaiser, the infamous wooden Ka-6. That is, something had to be first, the design started by taking the School's club, stock Ka-6, and replacing the horizontal stab, with one the

students designed and constructed from composite (foam/fiberglass) materials. This new stab was of the same planform and airfoil as the existing stab. The actual elevator remained unchanged (wood and fabric)! (Remember it was mentioned that these were just students having fun? Well, in Switzerland there is no such thing as an "Experimental" category, to allow for modifications to a previously "Certified" airframe. How did they accomplish flight tests, using a "Certified" airframe, which had been majorly modified from the configuration it was manufactured in, and certified under? Also, why did Professor Rauschler, allow for

The DIAMANT, as with any "cutting-edge" technology, has many fine "break-through" elements. It also has some "skeletons". I have assembled this paper in a manner which takes advantage of each of these highlights.

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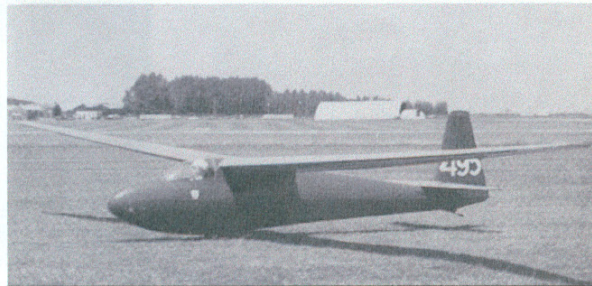
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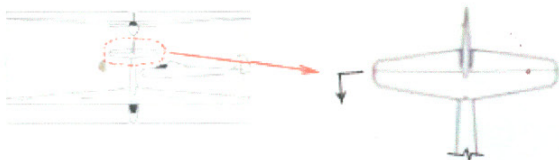
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Stabilizer of the Ka-6

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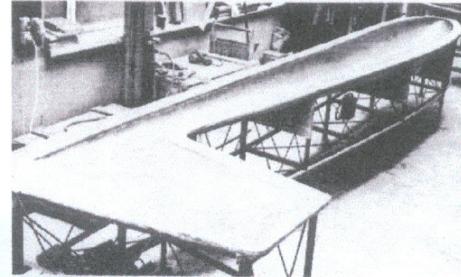
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and constructed from composite (foam/fiberglass) materials. This new stab was of the same planform and airfoil as the existing stab. The actual elevator remained unchanged (wood and fabric)! (Remember it was mentioned that these were just students having fun? Well, in Switzerland there is no such thing as an "Experimental" category, to allow for modifications to a previously "Certified" airframe. How did they accomplish flight tests, using a "Certified" airframe, which had been majorly modified from the configuration it was manufactured in, and certified under? Also, why did Professor Rauschler, allow for this

this to occur? Mysteries which are lost to time!) However, flight trials of the composite tailed Ka-6, proved successful, enough to warrant further exploration of the project.

The team next proceeded on fuselage design. Work on the fuselage progressed rapidly, with male "Blanks" being formed from expanded foam and wood. Female molds were produced over these blanks to form the basic shape. Probably, the most unique feature of this sailplane is the position of the pilot. The pilot rests in a completely reclined position, lying flat on their back (much the way a lounge racer lies on their sleigh to ride the ice course), while peering through his feet! This feature alone was responsible for reducing overall aircraft drag to that less than that of a one foot square plate, at any given airspeed. A few additional unique (non-standard) design features included in the sailplane were, the use of a side mounted control stick (similar to that found on today's F-16's), a full flying stab (Again found on contemporary fighters) and a "T" tail. (It is important to understand, while T-tails are common on sailplanes today, and the aerodynamic reasons for their use are hard to argue with, the T-tail design, at that time (early 60) was something recently added in the game! On the DIAMANT, the designers freely admit that the T-tail was chosen to prevent crop damage during off-field landings, not for any special aerodynamic



Half-shell mold for Diamant fuselage.



**The Different styles of Tail groups currently found on Sailplanes**

reasons!

Now that the group had a stabilizer and fuselage, what wing would they use? During the design of the fuselage, Professor Rauscher refused to assist the students with the design of a composite set of wings! He encouraged the group into looking for "German assistance"! (After all, the first Glass technology ship flew in Germany in 1958!) As an interim plan, until a set of wings could be developed, Von Voornveld again decided to use the proven technology of the Ka-6. As a result, the "bolt-on" wings from the club's Ka-6 were mated to the prototype fuselage! (Stop and think for a minute of what this has done to the legality, of the certification on the Club's Ka-6! Having pieces/parts sorted out and flown on or as part of another aircraft. The students literally ended the legal use of the club's Ka-6!). The results became the Ka-Bi-Vo (Pronounced "KayBeeVo", and identified the design team of Kaiser-Bircher-von Voornveld), this sailplane is currently in the United States and is listed as an Experimental design under a "Home-Built" category, and was still in flying condition, as of the Festival!. Rumor has it, that it was imported as an uncompleted, Home-built sailplane, and sat in it's trailer, in a hanger away from the light of day for many, many years! It is currently identified as the PS-1 White Knight. Side note - Jurg von Voornveld was the first person to fly the Ka-Bi-Vo in 1963, he was again offered to fly the craft (at the U.S. festival) after 30 years had passed, and losing all track of his prototype. The expressions and look on his face both before and after the flight are impossible to describe! Back to the design efforts. (It is becoming very clear to see why the developmental history of the DIAMANT is so difficult and mysterious to trace! With the legal aspects associated with the truth, being buried so deep!)

While all the work on the fuselage, tail feathers, and flight testing of Ka-Bi-Vo was going on, the students came across a talented and long time German sailplane designer named Wolfgang Huetter. It seems that Huetter had designed a set of wings for the H 30 and H 30-TS jet powered sailplane for which orders failed to materialize. (It is important to note that in the years following the manufacture of the DIAMANT, there existed another German manufacture of sailplanes. Due to politics a very strong and



often loud rivalry was formed.) Huetter was not associated with Eugen Hanle, and the manufacturing firm of Glasflugel, did not exist at this time! Huetter indicated that he would be willing to sell these wings and the associated tooling, to the Swiss students! These wings mated to the fuselage in a similar manner to those of Ka-Bi-Vo, however they were not of the same dimensions! This meant that Ka-Bi-Vo could not use the new wing, and the existing molds would have to be reworked to accommodate the new arrangement! Molds were modified, resin poured and glass laid. This second prototype, used the exact same wing from the H 30-TS, and became known as Hu-Bi-Vo. (Pronounced "WhoBeeVo", also identifying the team of Huetter-Bircher-von Voornveld) This was later shortened to HBV and became the prototype of the series.

Here is where the history really starts to become confusing, as the Glasflugel H-301 Libelle is generally given credit for much of the accomplishments of the DAMANT. It is interesting to note that the H-301 Libelle, did not exist at this time, even on paper! When the Prototype H-301 was rolled-out, it also had "Bolt-on" wings, not the familiar tongue and fork, which became the trademark of the series. It is important to understand, while it is often stated that the "DIAMANT" uses "Libelle" wings, the opposite is more correct. However, neither is 100% true, as both were derived from the H30, and to make matters more confusing only the prototype HBV had the H 30-TS wing, while the first 10 factory HBV's had the H30 wing, as modified by Hanle, of the Glasflugel firm! As a result of the flight testing of Ka-Bi-Vo and Hu-Bi-Vo, several fuselage refinements were incorporated and two further pre-production units were manufactured. (Known as the V-2 and V-3 machines!) Those modifications included;

- The rounding of the nose and forward fuselage
- The gentle curve of the fuselage (similar to a Lockheed Constellation a passenger airliner of the late 40's and 50's)
- The lengthening of the fuselage
- The strengthened and widened fin-fuselage juncture
- The incorporation of a small dorsal fillet, at the base of the fin as an attempt to further reduce drag.

Now would probably be a good time to explain that there were three main models of the "DIAMANT", during its production run! Variations' between the types was so great, that the only component remaining interchangeable was the horizontal stab! The first type being the "HBV" (The initials of the three designers last names.), the 16.5 meter version, and the 18 meter version (The only version not certified under "Standard Airworthiness Conditions", in the U.S.). It is also, important to note that the production run started with the "HBV", went into the 16.5, through the 18, back to the 16.5, returned and closed in the 18, at a final count of 80 units, with requests for additional units being rejected.

← Insert scans of wing Plan-Forms Here

There is also a significant subgroup of the 16.5 contingent, which have the 18's wing tips graphed in place, and/or "manufactured" in this configuration from the factory. Not to mention several "one-off" modifications including, at least two examples being stretched to 19 meters, an "open cockpit" or "topless" modification, a "Clipped" (15 meter) version, a "V"-tailed version and a self launching jet propelled article! More on these later

### The Confusing:

The prototype "HBV" flight tests were conducted in late 1964, and early 1965, with very positive results. It seems that enough interest was recognized in this "College Experiment" to invest the effort required to put it into production! Where would a sponsor be found? How could the students accomplish this? To the rescue comes the Swiss industrial giant, "Flug und Fahrzeugwerke, A.G." (FFA) (Flight and Rail, or Cable Trolley Company, Inc., rough translation.), however the DIAMANT was to be its' first and only, attempt in the production of high performance sailplanes! (Note- FFA's first association with aircraft production came during WWII, as they assisted Dornier in some production efforts! At the time (1964) they had major sub-contracts with Lear on certain pieces/parts of their then new "Biz-Jet".) All seems to be going well for the group. A decision is made, in order to facilitate start-up tooling and production, the first HBV wing is to be manufactured, by Huetter, in Germany, while production on the fuselage and stab, remained in Switzerland! FFA and their team set up production, in the city of Altenrhein, Switzerland, and completed the sub-components for the first Factory HBV DIAMANT sailplane.

Page Break

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At this point, our heroes (school students) traveled to Germany, to retrieve the first production set of wings, along with the molds. Here is where the trouble starts! It seems that in typical arrogant, Arian style the German custom's agent would not let the completed wings, and the molds leave the country without the crew paying an exorbitant duty! (It seems the customs' office, felt that proprietary information and manufactured items were leaving the country of origin, and they felt that their "Fatherland" was not

Glasflugel

of the glass fuselage

Insert scans of the three different wing platforms in here!  
to put it into

enough interest was recognized by this to invest the effort required

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formed the German Sailplane firm of Glasflugel.

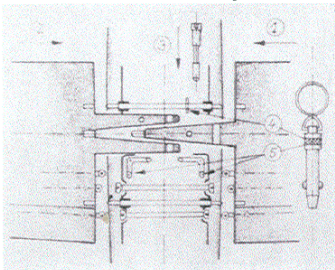
Between them, the students could come up with funding for either the wings or the molds, but not both. A decision had to be made! The group chose to bring the wings into Switzerland, and bring the molds across on the second trip. The molds were returned to Eugene Hanle, where they were made under the supervision of Wolfgang Huetter, joined together and. The students, placed an immediate order for an additional set of wings! This second set of wings (S/N 002), was fabricated in Germany, for HBV (S/N 002), on order by a German pilot. The final mating of the wings to the Fuselage would take place in Germany, and the completed fuselage would be sent when completed. (Remember it was mentioned earlier that the students were not business oriented, here again their inexperience surfaces!) The wings were completed in relatively short order. The Manufacture of the fuselage for 002 was taking longer than the customer thought necessary, and our (beloved) German wanted his sailplane now! It seems he (the German owner) became very displeased with the business ethics of the "collage boys", and managed to talk Huetter into designing a new fuselage for his set of wings! This design was called the H-301 and was completed and flown before the first Factory HBV was flown! (It seems the students could only work part time while in school, and in typical Swiss fashion, they just would not be rushed!)

In an effort to expedite the manufacture of this new design, Huetter joined forces with Hanle, and formed the Glasflugel Company. Which was to become one of the fiercest competitor's to FFA at this time the H 30 wing was redesigned, by Hanle and incorporated the now famous tongue and fork spar. A standing order for 10 sets of this new wing was placed by FFA. These would be used on the Factory HBV's. Meantime back in



The Glasflugel H 301 Libelle (Dragonfly) sailplane. A first cousin to the DIAMANT

Altenrhen, FFA decided to modify the fuselage by making it longer, and narrower. New molds were cut, and the gentle under cut curve of the belly was gone!



An illustration from the "Flight and operations manual" identifying the fork and tongue of the redesigned spar. The DIAMANT was the first sailplane to use this feature.

Through 1966 and into 1967 the first 10 "Factory" HBV's were built test flown, sold and shipped, with very little problems surfacing. Communications and teamwork between the two entities flowed as if they were working next to each other. (Keep in mind, this beats Lockheed, Boeing and Rutan by thirty years, in the total use of Composites in a Flight rated structure, no-one, was before them, and they broke new ground in composite manufacture and international business / manufacture techniques every step of the way!)

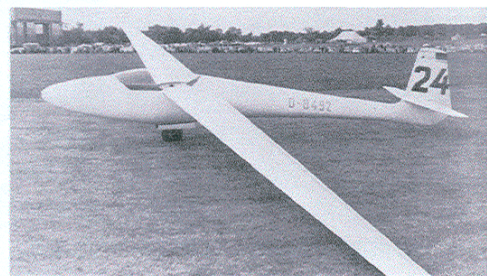
A second batch of 10 wings was ordered by the students; by now the new firm of "Glasflugel" had orders coming in for the "Libelle" at an unforeseen rate, and was having problems meeting their own production requirements. They refused the Swiss order for additional wings! With this problem, and the fact that the students were still in school, "being students", they left the project, and would not be involved with the project for the remainder of the production run! (As a closing note of thanks to the students, FFA built a special DIAMANT for Bircher near

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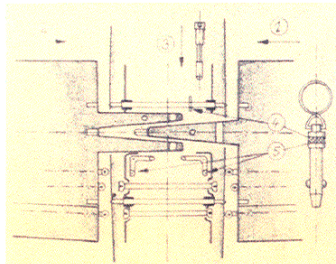
receiving appropriate duty!) Trying desperately to convince the authorities that all of the paperwork was in order, but failing at every turn, they finally accepted the fact that they would have to come up with the money to satisfy the "Gestapo"!

Between them, they could come up with funding for either the wings or the molds, but not both. A decision had to be made! The group chose to bring the wings into Switzerland, and bring the molds across on the second trip. The molds were returned to Hanle, who in combination with Huetter, formed the German sailplane firm of Glasflugel, which was to become one of the fiercest competitor's to FFA. The students, an immediate order placed for an additional set of wings! This second set of wings (S/N 002), was fabricated in Germany, for HBV (S/N 002), on order by a German pilot. The final mating of the wings to the Fuselage would take place in Germany, and the completed fuselage would be sent when completed. (Remember it was mentioned earlier that the students were not business oriented, here again inexperience surfaces!) The wings were completed in relatively short order. The Manufacture of the fuselage for 002 was taking longer than the customer thought necessary, and our (beloved) German wanted his sailplane now! It seems he (the German owner) became very displeased with the business ethics of the "collage boys", and managed to talk Huetter into designing a new fuselage for his set of wings! This design was called the H-301 and was completed and flown before the first Factory HBV was flown! (It seems the students could only work part time while in school, and in typical Swiss fashion, they just would not be rushed!)

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Again, some confusion needs to be added to the history lesson! From my advisor's notes taken at the 30<sup>th</sup> Anniversary get-together, there is one version story from actually interviewing Mr. Bircher. Keep in mind Bircher, although being a load designer, was no longer part of the manufacturing team. Therefore his account may or may not when Dan Pierson was asked to co-aborate the story, a significant difference in the developmental history was observed! I include both versions here and allow the reader to make the final decision!

#### **"Wing Version A" (via Tom Bircher)**

When the new wing was originally designed, it was to be an 18 meter wing. (Now you ask, if this is true how come you had mentioned earlier that the 16.5 meter version was produced first?) After the molds (18 meter) were cut, a survey was issued to those pilots having placed orders as well as potential customers, this survey queried the "group" on their thought, of a sailplane with 18 meters of wing. According to FFA, the results indicated that the general consensus indicated they would not buy an 18 meter sailplane! (Again this was after the 18 meter wing molds were cut!!) Could this be "Strike 2" for FFA?

Through some quick thinking efforts of the design team, a decision was made to insert plugs in the molds (both at the tip and at the root) to reduce the span to something more palatable (16.5 meters) to the marketplace.

#### **"Wing Version B" (via Dan Pierson)**

The first design of the new wing was to be for a 16.5 meter version. New molds were cut, and into production the DIAMANT 16.5 went! The design of these "new wings" included many features of the original Huetter/Hanle design. *For example...* The tongue and fork spar connection, automatic interconnect of the flaps and spoilers, and Shimp-Hirth style Airbrakes, which provided the DIAMANT, the capability to meet the JAR restriction of not exceeding V.N.E. (Velocity Never Exceed, or Maximum speed) speed in a dive.

#### **Continuation of the Story:**

Other design changes included at this time, originated from feedback indicating that the "side-mounted control column", was not all it was meant to be. With some owner's never getting completely comfortable with this feature before they sold their DIAMANTS. A redesign back to a conventional center-stick, was incorporated starting with S/N 011. In the meantime the '67 US National soaring competition was rapidly approaching. In a strategic business move, it was noted that if the DIAMANT was successfully flown in this contest, it could be expected that orders would literally "pour in" from all over the globe! (Thereby eliminating any possibility of the proverbial 3<sup>rd</sup> strike!) It came to pass that three weeks before the U.S. Nationals four brand new 16.5's arrived in the States. S/N 011, going to Rene Compte, while the second S/N 012, was offered to George Moffat. (An interesting side-note is offered here, the issue of "SOARING" magazine, mentioned earlier, with Moffat flying the DIAMANT on the cover, also identifies the results of the contest, and..... a classified advertisement for Moffat putting the ship up for sale!) The results of the contest are now history, but the results allowed for the DIAMANT to remain in production through 1970! (A relatively long time for a racing sailplane *of that period!*)

Starting with S/N 026, and responding to the (at that time) current trend in the soaring movement, FFA elected to offer and produce the all out 18 meter version. Here again the story line splits into two separate versions. Both are included, as neither version can be proven or disproved.

Schuykill Valley High School  
Leesport, PA 19533

## Graduation Project Proposal Form - Class of 2001

Name: Jason R. Babiarz Date: 5/17/99

Topic: Silent Flight

Advisor: Art Babiarz Jr.

Course Selection (Check One):  
 Graduation Project Academic  
 Graduation Project Honors

### Describe Your Activity:

I am interested in studying about Sailplanes. I want to understand Sailplanes in terms of the following:

- How such a heavy thing can fly and not fall like a rock.
- How the controls of the Sailplane work.
- The purpose of each instrument on the panel.
- How a Sailplane can gain altitude.

### Describe the Subject of Your Research Paper:

My research paper will cover the history of the *DIAMANT*. I will include:

- How a group of three Swiss collage students made a dream come true through hard work and some luck to develop the first fully composite airframe to be put into mass production, anywhere in the world.
- How this great machine lived through the early problems.
- What it is like to maintain and enjoy one of the surviving articles.

Describe the Subject of Your Oral Presentation:

For my oral presentation I will:

- Run through a preflight inspection for the *DIAMANT*.
- Explain the instrumentation and control systems.
- Explain how the *DIAMANT* is assembled and disassembled.
- Last but not least rides in a Slingsby T53.B Sailplane (not in the *DIAMANT*, for it is a single place machine) will be offered.

List Possible Resources (minimum of 3 required):

Some of my possible resources are;

- SVHS Library
- Kutztown Airport
- Internet
- Diamant 16.5 s/n 012 (itself)
- Operation Manual for the *DIAMANT*
- Technical Manual for the *DIAMANT*
- SOARING – The journal of the Soaring Society of America

Reviewed by:

  
Student's Signature

  
Parent/Guardian's Signature

  
Graduation Project Coordinator's Signature

Days Late: 0

Schuylkill Valley High School  
Leesport, PA 19533

## Advisor Approval Form - Class of 2001

Name: Jason R. Babiarz

Date: 5/17/99

Topic: Silent Flight

Advisor: Art Babiarz Jr.

Describe the advisor's expertise and how this expertise relates to your topic:

My advisor has been flying since 1972 (since he was 14). Currently he holds a Commercial Pilot's Certificate, with a Flight Instructor's Add On Rating. He has flown throughout most of the United States, and several countries in Europe. He owns one of the most significant sailplanes in Soaring History.

I agree to serve as the advisor for the above named student and to help this student with his/her graduation project. I understand that I am to advise the student relative to the project topic listed above. I understand that there are other sources available to help the student with the research paper, oral presentation, and other graduation project requirements. I have read a copy of the Advisor's Responsibilities. Except for the possibility of unforeseen circumstances, I agree to help the student for the entire length of the graduation project.

  
Advisor's Signature

Reviewed by:

  
Graduation Project Coordinator's Signature

Days Late: 0



Schuylkill Valley High School  
Leesport, PA 19533

## Progress Report Form - Class of 2001

Name: Jason R. Babiarz Date: 18 September, 99

Topic: Silent Flight

Advisor: Arthur T. Babiarz, Jr.

1. Describe what you have done relative to your project, activity, research paper, and oral presentation since submitting your last progress report.  
This is my first progress paper on the project. To date I have accomplished the following tasks:
  - Gathered reference articles, including magazine articles, book material, video clips, and historical development reviews.
  - Started to review and edit above articles for incorporation into this project.
  - Interviewed my advisor on the assembly/disassembly procedures of the DIAMANT.
  - Volunteered time at Kutztown Airport to understand procedures required for safely conducting Sailplane Operations' at a Commercial Airport, with a "mixed environment".
  - Started to electronically scan personal photographs for inclusion in the research paper.
  - Browsed the Internet for addition information on this Sailplane.
  
2. Approximately how much time, in hours, did you spend completing the activity portion of your graduation project since your last progress report?
  - 18 hours of assistance at Kutztown Airport, including the ground handling of sailplanes, the assembly/disassembly of sailplanes, aided pilots' in the preparation for launch and the actual ground launching of sailplanes. Additional duties included the refueling of the towplanes, assisting office staff in recording flight data, video data collection and customer familiarization to commercial pilots' and aircraft.
  - 5 hours research effort to collect and edit material on the DIAMANT sailplane with my Advisor. Research Material gathered to date includes:
    - Personal photographs and video clips
    - Historical Articles on the development of the sailplane
    - Historical Articles on the Contest records of the Sailplane

3. Are you having any major difficulties?

No, my advisor is probably the second most knowledgeable person in the United States on my subject paper. He has been involved with Soaring since 1970, and has owned the most historic example of the DIAMANT in the United States, for the past six years. What he can not answer, he calls the "Guru" Dan Pierson, who has been involved with the DIAMANT project since 1965. If Mr. Peirson is unable to determine the appropriate answer, either of the two surviving designers' of the aircraft can be contacted, in Switzerland, who are personal friends of both my advisor and Mr. Pierson.

4. If so, describe the problem and where you feel you can find assistance to solve the problem.

At this time no problems exist, and none are expected to surface.

5. Do you feel you will have all aspects of your graduation project completed on time?

At this time, if there are no unforeseen occurrences, I expect to have my graduation project completed on schedule.

Reviewed:

*Michael*  
Graduation Project Coordinator

9/21/99  
Date

Days Late: 0

October 19, 1999

TO: The Parents of Jason Babiarz  
FROM: Mr. Steven Schell, Graduation Project Coordinator *SS*  
SUBJECT: Failure To Meet A Graduation Project Requirement

This memorandum is to inform you that as of the date of this memorandum, your son/daughter has failed to submit the following Graduation Project requirements:

**Progress Report #1**

The Graduation Project is a mandatory requirement for graduation from Schuylkill Valley High School. By failing to submit the this item you son/daughter's grade for the Graduation Project is being adversely effected. This could result in them eventually not graduating at the end of their senior year.

Please encourage your son/daughter to submit the above items to me at Schuylkill Valley High School as soon as possible.

If you have any questions on this memorandum, please feel free to contact me at the high school, 926-1706.

*PAPER WAS  
TURNED IN ON 9/21/99  
BUT WAS NOT RECORDED  
IN THE COMPUTER. SORRY  
FOR THE MISTAKE.  
PRESENT GRAB 100%  
Schuylkill -*