

Date: 10/22/93

Owner: Art Babiarz

Review of status:

1. A review of the aircraft logbooks and records was conducted with the following conclusions relative to the airworthiness status:

- a. The glider has been modified from certificated configuration of 16.5m wing span to a greater wing span. There is no apparent documentation for this modification to substantiate that the modification was FAA approved. Due to the nature of the modification, which may present both structural, and flight handling characteristics modifications, FAA approval is not economically feasible. Therefore the only other method which will permit the aircraft to be legally flown would be to place it into the Experimental category. It should be recognized by the owner that, as implied by the category, the flight and handling characteristics of the aircraft may not meet the same standards as a Standard Category certificated aircraft. Any conclusions as the handling characteristics or structural integrity can only be derived from the experience and knowledge of the previous pilots and owners. General industry knowledge expressed by Mr. Dan Pierson has presented that modifications similar to that conducted on your aircraft have been done to several Diamant's 16.5m gliders, and that he is not aware of any adverse effects caused by the modification. To his knowledge those aircraft are also flying in the Experimental category.

The canopy latching system has also been modified from the certificated configuration without FAA approval (documentation). This would also be addressed by placing the aircraft in experimental category.

Please be aware that the assistance to place the aircraft into the Experimental category is not to be considered a recommendation or endorsement of the safety of the aircraft.

- b. The current empty weight of the aircraft, after the removal of the oxygen system is 696.5 lbs. with the maximum gross weight of the aircraft being 860 lbs. resulting in a maximum pilot weight of 163.5 lbs. This is not a practical pilot weight, and will not permit you to fly the aircraft at your current weight.

With the aircraft in the Experimental category, as

previously mentioned, the maximum weight could legally be exceeded if it utilized a reasonable rational. Mr. Dan Pierson in a conversation with me on 10/16/1993 recommended the following rational; Consider that a maximum gross weight with water ballast of 900 lbs exist, and that the maximum fuselage weight (non lifting element weight) is 485 lbs. The current fuselage empty weight is 262 lbs providing a maximum weight, not withstanding the gross weight limit of 223 lbs. It is known that in excess of 35 lbs was added to the wings in the modifications done by the FFA factory in 1968. At that time the empty weight was increased from 589 lbs to 630 lbs. The rational was then made that since a substantial amount of the empty weight increase was the wings, that weight could be considered to act in place of the mass of the water ballast. The max gross weight would then be 900 lbs (the water ballast gross) permitting a pilot weight of 203.5 lbs. He also expressed that in the Experimental category the gross weight could conceivably be increased to accommodate pilot weights to up to the maximum fuselage weight.

This rational may have some validity which will have to be considered by yourself before deciding to increase the weight limitation. I while I will assist in securing the FAA Experimental airworthiness certificate with a modified gross weight limit, this action is not considered to be an endorsement. In any case I highly recommend that you do not exceed the 900 lb. gross weight under any circumstance.

c. AD status:

AD 75-16-19 Fin and rudder overlap is complied with by the sign off of FFA S.B. #2.

AD 75-17-09 Seat belt inspection A reference is made to a '337 dated 3/30/93 but no actual sign off exist in the current records.

AD 81-12-51 Replacement of rudder bolt. A reference is made but no sign off exist.

AD 81-16-01 Bonding of wing spar. Part A placarding is complied with and signed off. Part B will be required to be done at 1000 hrs TT.

Summary: The AD's that are not signed off may be actually done but an inspection must be done to confirm the status, at which time a sign off will be accomplished. A copy of FFA S.B. # 5 will be required to verify the seat belt mod. Note that the experimental category will not exempt you from AD compliance.

d. Service Bulletin status: It is known that FFA S.B numbers

1, 2, 6 have been complied with. The status of others is unknown. Compliance with manufacturers service bulletins is not mandatory unless referenced by an AD as in AD 81-12-51. It is recommended however to comply with the manufacturers service bulletins.

e. The annual inspection was signed on 8/27/93 and is valid until 9/1/94.

2. Weight and balance: The aircraft gained 81 lbs. between the 12/68 weighing and the 8/93 weighing. This is a large weight gain. Research of the records reveals that in this time period several modifications and repairs were made to the aircraft which could account for this; added oxygen system (14.5 lbs), refinished gel coat (possibly 50-60 lbs), many wing repairs (unknown).

3. From a FAA legal standpoint, placing the aircraft into the Experimental category will solve the non-compliance issues with the aircraft configuration, and weight. However, it is solely your decision as to whether the non compliant issues present an excessive safety concern to you. It is my judgement that individually the non compliant issues may not be critical, but the current combinations of non-compliant issues may present unknown safety issues. For example, the combination of increasing the gross weight, while at the same time a limitation exist due to a known defect in the wing spar area (AD 81-16-01) may present a hazardous condition. I simply do not have sufficient data or knowledge of the modifications to say.

Actually changing the airworthiness certificate to experimental is accomplished by declaring the aircraft use for "exhibition and racing" and accepting the limitations imposed by the experimental certificate. As you have requested I will contact the Allentown FSDO to proceed with this when the aircraft is cleaned up and prepared.

Regards,



Daniel H. Morris III

MORRIS TECHNOLOGIES

FAX COVER SHEET

TO: Mr. Ernie Manzi

DATE: 11/29/93

LOCATION: FAA MIDO 45

FAX NUMBER: 201-645-2367

FROM: Dan morris

NUMBER OF PAGES INCLUDING THIS COVER SHEET: 4

Ref: Experimental Airworthiness Certificate for Diamant 16.5 S/N 012.

Dear Mr. Manzi;

The request for an Experimental Airworthiness Certificate for the above glider includes the consideration of using the water ballast increased maximum gross weight, without carrying water ballast. The following is the rational for this request, and the new desired limits.

The weight limitations that currently exist, by type certificate, and by flight manual limits are 860 lbs maximum gross weight without water ballast, and 900 lbs maximum gross weight with water ballast. There also exist a maximum fuselage weight of 485 lbs.

The current gross weight without water ballast (860lbs) permits only 162.7 lbs for the pilot weight. If the maximum fuselage weight was the limiting factor, the maximum pilot weight would be 222 lbs.

Several FFA factory modifications to include the addition of flap counter weights were performed, after which the empty weight of the glider increased by 41 lbs. This is evidenced by the weight and balance records from before the modifications (5/29/67) and after the modifications (12/26/68). Since the only modifications accomplished in this time were the wing modifications, it can be assumed that the wing modifications weighed 41 lbs. Factory documentation of the flap counterbalances show the addition of 35 lbs for that modification alone.

Therefore the conclusion can be drawn that 41 lbs were added to the wings.

Since the increase in the certificated maximum gross weights with water ballast occurs due to the fact that weight in the wing does not increase the spar, root and fuselage loading, it can be assumed that any distributed load in the wing acts the same as the water ballast. The weight difference between the without and with water ballast maximum gross weights is 40 lbs one pound less than the modifications.

Since the modification weight in essence, replaces the water ballast weight, and the maximum fuselage weight is still well within limits, the critical wing structural components are not being loaded in excess of their design when using the 900 lb. gross weight with out water ballast. Therefore utilizing the 900 lb gross weight without water ballast, as long as the maximum fuselage weight is not exceeded, will maintain the same level of safety as the factory design limits prior to the factory wing modifications, and should be approved for operation in the Experimental category. Note that this rational does not alter the current certificated operating airspeed and flight loading limits, or those imposed by AD 81-16-01

Sincerely,

A handwritten signature in cursive script that reads "Daniel H. Morris III". The signature is written in dark ink and is positioned below the word "Sincerely,".

Daniel H. Morris III



U.S. Department
of Transportation
**Federal Aviation
Administration**

**Manufacturing Inspection District Office
150 Fred Wehran Drive
Teterboro Airport
Teterboro, New Jersey 07608
(201) 288-4340**

**MODIFIED OPERATING LIMITATIONS - Supplement to
FAA Form 8130-7 dated DECEMBER 7, 1993**

AIRCRAFT MAKE: FLUG UND FAHRZEUGWERKE **REGISTRATION NO.:** N1193
AIRCRAFT MODEL: DIAMANT 16.5 **SERIAL NO.:** 012

This Glider/Sailplane is certificated in the Experimental Classification for Exhibition/Air Racing in accordance with FAR 21.191D and E and FAR 21.193 General.

1. No person may operate this aircraft for other than the purpose for which the Special Airworthiness Certificate was issued and the aircraft shall be operated in accordance with the applicable General Operating and Flight Rules (FAR 91) and Special Air Traffic Rules and Airport Traffic Patterns (FAR 93).
2. A list of the proposed events to be attended and how the aircraft will be exhibited, must be submitted yearly to this office in accordance with FAR 21.193. A copy of this list is to be attached to these operating limitations.
3. No operations shall be conducted over densely populated areas or in congested airways except for takeoffs and landings.
4. Operators of this aircraft shall notify the Control Tower of the experimental nature of this aircraft when operating it into or out of airports with operating control towers.
5. This aircraft must be operated VFR Day only.
6. This aircraft shall contain the placards, listing and instrument markings required by FAR 91.9 (formerly 91.31).
7. No person may operate this aircraft for carrying persons or property for compensation or hire.
8. The person operating this aircraft shall advise each person carried of the experimental nature of this aircraft.

AIRCRAFT MAKE: FLUG UND FAHRZEUGWERKE
AIRCRAFT MODEL: DIAMANT 16.5

REGISTRATION NO.: N1193
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9. Aerobatic maneuvers are prohibited except when sanctioned and approved by the designer and recorded in the logbook with detail flight characteristics. Aerobatic maneuvers must be performed per FAR 91.303 (formerly 91.71) and parachutes must be worn.
10. Aerobatic maneuvers shall not be conducted while carrying passengers.
11. No person may exceed the designer's or builder's recommended limitations as follows:
- | | |
|-------------------------------|---------------------|
| (a) Maximum Gross Weight | <u>900LBS.</u> |
| (b) Center of Gravity Limits | <u>+10 TO +15.4</u> |
| (c) Maximum Auto or Winch Tow | <u>93</u>
MPH |
| (d) Maximum Airplane Tow | <u>93</u>
MPH |
| (e) Maximum Smooth Air | <u>103</u>
MPH |
| (f) Maximum Rough Air | <u>103</u>
MPH |
12. No person may operate this aircraft in clouds unless an airspeed indicator, altimeter, turn and bank indicator, variometer and magnetic compass are installed.
13. Any major change to this aircraft, as defined by FAR 21.93, and/or incident, accident, etc., involving this aircraft, invalidates the special airworthiness certificate issued for this aircraft. This office must be notified accordingly.
14. This aircraft does not meet the requirements of the applicable comprehensive and detailed airworthiness code as provided by Annex 8 to the Convention of International Civil Aviation. The aircraft may not be operated over any foreign country without the special permission of that country.
15. No person may operate this aircraft unless within the preceding 12 calendar months it has had a condition inspection performed in accordance with Appendix D of Part 43 and found to be in a condition for safe operation.

AIRCRAFT MAKE: FLUG UND FAHRZEUGWERKE
AIRCRAFT MODEL: DIAMANT 16.5

REGISTRATION NO.: N1193
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16. Only FAA certificated and rated airframe and powerplant mechanics and appropriately rated repair stations may perform condition inspections in accordance with Appendix D of Part 43.
17. Condition inspections shall be recorded in the aircraft maintenance records showing the following or a similarly worded statement: "I certify that this aircraft has been inspected on (insert date) in accordance with the scope and detail of Appendix D of Part 43 and found to be in a condition for safe operation." The entry will include the aircraft total time-in-service, the name, signature and certificate type and number of the person performing the inspection.
18. This Airworthiness Certificate expires December 6, 1994 unless surrendered and/or revoked for other reasons.



ERNEST A. MANZI
Certificating Inspector's Signature

December 7, 1993
Date

ANE-MIDO-45, Teterboro, NJ
Certificating Office & No.

23 November 1993

Department of Transportation
Federal Aviation Administration
Washington, D.C.

To whom it may concern:

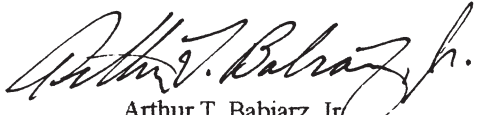
Recently I had purchased a classic, single place, open class, fiberglass sailplane, with the intent of restoration to the condition it was in when it was being flown on the competition circuit. In accomplishing this, I have had to place the sailplane in the "Experimental" category (for exhibition and racing). In researching the requirements for certification I was informed that I am required to submit a listing of the airshows and exhibitions that I plan to attend during the 1994 season. Please understand that this letter is to serve this purpose.

Aircraft Manufacturer: **Flug und Fharzuegworke**
Aircraft Make: **Diamant 16.5**
Aircraft Serial No.: **12**
Aircraft Registration No.: **N1193**

<u>Dates</u>	<u>Event</u>
29 May-04 June	Region 4 North Contest, Fairfield, Pa.
12-21 July	Sports Class Nationals Contest, Siskiyou, Ca.
August	Reading Airshow, Reading, Pa.
September	30th Anniversary Diamant Fly-In, Skylark North Gliderport, Ca.
October	Morgantown Air Days, Morgantown, Pa.

Please be advised that exact dates for the last three events have not been received, at this time. I intend to forward these dates as soon as they become available to me. Thank you for your continued support of sport aviation.

Very truly yours,


Arthur T. Babiarz, Jr.

INVOICE

MORRIS TECHNOLOGIES
2501 TRINITY CT.
CHESTER SPRINGS, PA 19425
(215)524-0160

DATE: 2/15/1993

BILL TO:
Art Babiarz

Ref: Glider FFA Diamant 16.5 S/N 012.

Perform review of airworthiness status of aircraft and assist owner in repairs/ modifications to include the following.

Review aircraft logs, AD status, weight and balance.

Inspect aircraft for discrepancies.

Supervise owner during repairs and routine maintenance per list of discrepancies provided.

Inspect for completion of AD's not previously signed off.

Review aircraft status with Dan Pierson

Complete FAA 337 major alteration forms for the removal of optional equipment

Revise the aircraft weight and balance for equipment changes.

Apply for Experimental Airworthiness certificate issuance.

Provide engineering report for rational of FAA permitting increased gross weight use.

Order old FAA 337's from FAA.

Arrange for FAA inspection and issuance of Experimental Airworthiness.

Total labor charges 13 hrs @ \$30/hr. \$390.00

Misc. charges:

Welding charges \$20.00

Machine shop charges \$10.00

Art Babiarz Diamant 16.5 S/N 012

Graphite dry film lubricant \$10.55

Phone call to Dan Pierson 10/16/93 \$13.26

TOTAL \$443.81

Note: Old records from FAA to be forwarded upon receipt.

Pd \$100.00 12/16/93 JHh

Given \$125.00 to Joe Pierson 01-01-94 for delivery
to Dan Morris

Pd. \$100.00 Check # dated

Pd. ~~\$125.00~~ check # 128 dated 2-28-94
\$150.00 ATABSR. checking Account.

Includes Microfich FAA337's

570 Sleepy Hollow Drive

Federal Aviation Administration - MIDO 45
150 Fred Wehren Drive
Teterboro, N.J. 07608

Subject: Supplemental information required for "Experimental" certification of FFA
Diamant 16.5 sailplane S/N. 012 Registration No. N1193

Dear Mr. Manzi,

Pursuant to our discussions in early December of 1993, regarding the the licensing of the above identified sailplane in the "Experimental" category, I have obtained from D. Morris the information which I understood you to require.

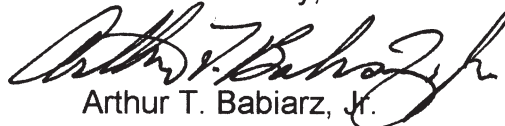
Attached please find copies of the following documents and placards:

- o FAA Form 337, dated 16 November, 1993 regarding the removal of the O2 system, water ballast system and misc. identified equipment. (2 pages)
- o Current Weight and Balance Report, dated 28 November, 1993. (1 page)
- o Previous Weight and Balance by Inter-city Soaring, dated 14 August, 1993 (3 pages)
- o Miscellaneous placards and limitation identifications as identified and required (1 page)

If, after reviewing the attached documents, questions remain, please contact me at my home phone (215)926-7089, in the evenings or write to me at the above address.

Again I thank you for your time and assistance in my registration efforts.

Sincerely,


Arthur T. Babiarz, Jr.