THE BD-5 BULLETIN

A quarterly publication by and for BD-5 enthusiasts

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The BD-5 Bulletin
Official Newsletter of
The BD-5 Network
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Under new management!

By Juan Jiménez, Editor

We are back!!! Welcome to the first issue of the new BD-5 Bulletin!

Over the last few months I and Rich Perkins have been talking about reviving the BD-5 Bulletin. As Rich found himself spending more and more time on his business, Attitude Aviation, as well as his Air Force job, he realized that he would not have enough time to devote to publishing the Bulletin.

However, Rich did not want the BD-5 Network or the BD-5 Bulletin to fade into history. After some long conversations and a lot of thought, I decided to accept Rich's offer to pass the leadership of the BD-5 Network to me. I will take over the newsletter and the maintenance of the BD-5 Network Membership database.

What you now hold in your hands is the first result of these efforts to revive the publication. For the moment I intend to keep it short and manageable, one step at a time.

One of the most important questions I am sure many of you will want to know is whether or not we will honor subscription payments previously received.

The answer to that question is a resounding **yes**! Those funds are still very much available, and will be used to produce and mail the Bulletin. Once subscriptions run out, we will begin to send out renewal notices.

This issue is being mailed to all subscribers as well as to all members of the Network. Future editions will be mailed to subscribers only. If you want to subscribe, you will find complete instructions on the last page.

There is one significant change from the previous newsletter format. For those of you that are connected to the Internet, we will offer an electronic version of the newsletter. Subscriptions to the electronic version will be available at a slightly lower price, and the issues will be available in a password-protected area on the BD-5 web site.

It is my hope that you will enjoy this new version of the Bulletin as much as you enjoyed the excellent publication that Rich Perkins published. I will try my best to do as good a job.

Call for Authors

Do you enjoy writing and passing on information for the enjoyment of others? Do you have a personal computer? If so, here is your chance to gain notoriety and fame in the BD-5 community.

The Bulletin needs authors to write articles about subjects related to the BD-5. Some ideas: construction tips, avionics, electrical systems, flight test reports, historical tidbits and just about anything else you can think of. Interested? Email flybd5@hotmail.com or mail your manuscript to the address listed on the left hand corner of this page. You do the writing and Juan will take care of the editing!

Millenium Expo!

That's right, the first Millenium BD-5 Expo is in the works! Hard to believe that the BD-5 has retained its popularity into the 21st century, no? More than twenty-five years after its introduction, Jim Bede's creation is still going strong, and how! Just ask Skeeter Karnes at BD Micro about his backlog of firm orders! And not just reciprocating airframes, but jets as well!

Last year the Expo took place at the Gainesville Municipal Airport in Gainesville, Texas. Because the decision to hold the Expo in Texas was made at a late date, there was not enough time to send out notifications to the members of the Network. Another issue was funding; I wanted to hold an Expo, but did not have enough money to prepare for a large number of guests.

Even so, some seventy-five BD-5 enthusiasts showed up in Gainesville from as far away as Great Britain and Guatemala. We had two -5's on display, my own partially refurbished N522PR and Pat Jones' KFM-equipped bird. Rich Perkins had notified Pat at the last minute of the Expo and we were lucky to have him with us.

This year we are planning to again have the Expo in Texas, near DFW airport. Holding the Expo in a central location in the country with a large airline hub and plenty of places to stay and things to do will help draw participants. This year, though, I am considering holding the Expo in conjunction with the Dallas FINA Airshow at Love Field.

The idea will be to offer the Expo attendees not only a BD-5 activity but also a first-rate airshow famous for its warbird exhibitions.

In the next few weeks we will be sending postcards by mail notifying of the dates and location of the Millenium BD-5 Expo.

UK Builder Battles CAA Conclusions

The last thing that UK BD-5 builder Greg Monaghan expected was that the CAA would flatly deny him the pleasure of being able to fly his -5 on the basis of outdated and incorrect information on the aircraft's safety record and flight handling characteristics.

On September 27, 1999 Greg received a letter from an A.C. Love, Design Surveyor of the Aircraft Projects Department of the CAA, in which he was informed of the decision not to issue him a registration certificate for his project. The decision was based almost entirely on information dating back to 1976 -- a test flight carried out by a CAA pilot -- and did not take into consideration the last twenty-three years of experience with the BD-5.

But Greg does not give up easily, and neither does the BD-5 gang. Armed with test flight reports by Les Berven and Seth Anderson as well as plenty of information from current BD-5 builders and owners, Greg is now in the process of appealing the decision. We are all going to be rooting for you, Greg, and rest assured you can count on the Network for help. Heck, if you can fly all the way to Texas for the Expo, you cannot be all that bad!

Nosegear Fork Service Bulletin

As all of you know, the BD-5 uses a Gerdes nosegear strut assembly that implements a fully castering nosewheel design. The fork to which the nosewheel attaches swivels 360 degrees, allowing for great maneuverability while taxiing the aircraft.

During the process of refurbishing N522PR I had noticed that the nosewheel would not "lock" properly in the centered position. This mechanism is crucial to the proper retraction of the strut into the fuselage.

The swiveling point on the strut contains a spring and ball bearing under a teflon disk. The spring and ball fit into a bushing which slides into a hole in the lower fork assembly. The spring pushes the bearing up into a second teflon disc which contains an indentation slightly larger than the bearing. It is this indentation into which the ball fits when the nosewheel is centered.

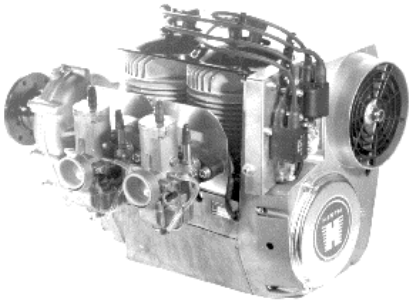
The problem here is that the joint is open to the elements. Dirt, sand and other materials can get in between the discs and, if left alone, will damage the disks. Eventually the damage is so great that the nosewheel will not center. In my case, the spring failed from corrosion and the ball came out of the bushing, heavily scoring the teflon disks over time.

I have spoken to Wag Aero, the company that sells the nosegear strut, and have been informed that they do not sell spare parts, only complete struts, for $179.50 + S&H. Better to inspect and clean the swivel point before and after flight.

BD Micro Picks Hirth 2706E

Edward Karnes of BD Micro Technologies recently informed the public, in a message posted on the BD-5 Internet Mailing List, that the company has made a final decision as to what reciprocating engine will be used for their FLS-5 airframes. After much research and testing, BD Micro has chosen the Hirth 2706E 2-stroke, 65 horsepower, air-cooled, fuel-injected engine.

The 2706E is the latest version of the 2706 model line from Hirth, which has been producing the 2-stroke engines for aviation applications for many years.



For the past 2 to 3 years, the Hirth engine company has spent about $20 million dollars improving their aircraft engine line. Some of the improvements include a digital ignition system and fuel injection.

This is the same basic electronic system used on BMW motorcycles. A unique feature of the digital ignition is that it is self-sustaining, just like a magneto. Once the engine is up and running, power is provided by the engine itself and not from the aircraft's electrical system, a feature which adds greatly to engine reliability.

Most of the emphasis has been on the 2706 because it is Hirth's biggest seller. The factory one year warranty has recently been upgraded from "Parts and Labor" to a one year unlimited warranty. No other engine company makes a warranty claim even close to this.

This speaks highly of Hirth's confidence in their product. BD Micro, a Hirth OEM, is now in the process of finalizing the details of a turnkey package that will include the engine, engine mount, Prince Aircraft Company propeller, all related hardware, engine instruments and sensors, documentation and technical support. BD Micro will not be selling individual components such as the engine mount, except as spare parts for customers who bought the full package and need replacements.

Could this finally be the engine standardization program that the BD-5 has needed for so long? If so, it could give our little aircraft a significant boost within the experimental and sport aviation community.

Newsletter Classifieds

As in previous editions of the Bulletin, we will be accepting classified ads for publication. The cost of the ads will be $2 per ad per issue, maximum of five lines per ad.

For your reference, the paragraph above contains 5 lines. Display advertising will also be accepted, and must be submitted in camera-ready format, black and white or grayscale only. Color copy will be accepted but it will be scanned in 256 grayscales .

Pricing for display advertising is $25 for one quarter page, $45 for a half page and $85 for a full page ad, per issue.

Advertisers who choose to place display ads for two or more consecutive issues may deduct ten percent from these prices if prepayment is included for the entire run.

Prop Pitch Motor Probable Cause of BD-5 Accident

The following is a preliminary NTSB report on a recent fatal accident involving a BD-5B (turboprop conversion):

NTSB Identification: LAX00LA023

Accident occurred OCT-22-99 at BOULDER CITY, NV, Aircraft: Luhnau BD-5B, registration: N62765
Injuries: 1 Fatal.

This is preliminary information, subject to change, and may contain errors. Any errors in this report will be corrected when the final report has been completed.

On October 22, 1999, about 1507 hours Pacific daylight time, an experimental Luhnau BD-5B, N62765, was destroyed when the amateur-built airplane descended at a steep angle and impacted terrain about 1 mile southwest of the Boulder City Municipal Airport, Boulder City, Nevada. Visual meteorological conditions prevailed and no flight plan was filed for the post-maintenance test flight.

The airline transport licensed pilot, the sole occupant, was fatally injured. The flight, operated by the owner/pilot, was performed under

the provisions of 14 CFR Part 91, and originated from Boulder City about 1500.

A witness reported observing the pilot takeoff from runway 09, climb to about 400 feet above ground level, turn right onto the crosswind leg, and then turn onto the downwind leg at the traffic pattern altitude. Thereafter, the witness heard the pilot announce his position in the traffic pattern.

About 10 seconds later, while the airplane was maintaining a level flight cruise attitude, the airplane began descending and turned right toward the airport. The witness further reported that the rate of descent increased and the pilot broadcast "765 I've got a problem."

The witness lost sight of the airplane while it was descending at what appeared to be a 30- to 40-degree nose down angle.

According to the responding Federal Aviation Administration (FAA) inspector, the preliminary wreckage examination revealed that the airplane impacted terrain in a nose low attitude consistent with its last observed flight attitude. There was no fire.

The entire airplane structure was found at the site of the main wreckage, and the continuity of the flight control system was confirmed. Information from another witness revealed the airplane was powered by a Solar turboshaft (APU) engine which was previously installed in a helicopter.

An electric motor controlled the pusher-propeller's variable pitch setting. Just prior to the flight, the pilot was observed making a wiring change to the propeller's pitch control drive motor. The alteration was intended to reduce the time necessary to vary the pitch through its full range of travel from 15 to between 7 and 8 seconds.

The FAA inspector reported that the propeller assembly did not appear to have been damaged during the impact sequence. The propeller blade pitch angle was found near the 2-degree pitch position.

Ed. It has come to our attention that this aircraft was involved in a similar incident prior to this one, in which the propeller blades became stuck at a flat pitch and the propeller pitch control motor failed.

The drag of the flat blades forced the pilot to assume a radical nose low attitude to maintain controllable airspeed, and he was able to land, albeit with some damage to the aircraft.

The pilot had apparently been advised that the propeller should be replaced, and a suggestion was made to use the Quantum propeller that BD Micro Technologies sells.

Apparently the pilot decided to modify the motor so that the blades would be actuated faster, but apparently the modification was not successful and may have contributed to this unfortunate accident.

Food for thought... of all the questions that any BD-5 builder should be asking him or her self, one stands out above most.

Do you want to fly, or do you want to experiment?

We all know that the BD-5 is one example of what is known as experimental aviation. But is the BD-5 the right aircraft with which to experiment on such critical issues as propeller blade actuation systems?

As I said, food for thought.

Flashback city... can you guess the date of the picture?

Ban the Bondo!

You have finally reached the point in your BD-5 project when you need to start thinking about finishing and paint. The color scheme is picked out and the paint shop appointment has been made.

But wait, what about all those rivets and dimples? Those other BD-5's look really good with their smooth surfaces and invisible rivets. You just have to have that kind of finish on your baby. But how?

If you are like most people, you have not given this issue much thought. But you have a paint shop appointment to keep, and what can be so hard about this?

Then you remember that all purpose filler, Bondo, the one that can work wonders on those dings and dents on that old car! Of course! That is the solution! Or is it?

Forget it. Do not even think about putting Bondo on your pride and joy. This product is meant for repairs on surfaces that are not meant to last a long time.

What happens to Bondo over time is that it shrinks and cracks. It is also a very heavy product which can add many pounds to an aircraft that is supposed to be as light as possible. In fact, Bondo adds ten pounds to your aircraft's empty weight for every gallon you apply to its surface.

Can you imagine how you will feel when you go get your baby out of the garage for that Saturday flight you have been looking forward to all week, and find a huge crack on that expensive paint job?

What to do? Fortunately, there is a solution, and it is called SuperFil. This product is a two-part epoxy-based composite filler. One part is the epoxy catalyst; the other is a paste which contains tiny glass microballoons.

When mixed on a ratio of 2:1, the result is a very thick slurry that can be applied to just about any clean surface, at any angle, including upside down!

And for every gallon of SuperFil you use you will only add a measly 3.6 lbs of weight!

Once mixed, the slurry will dry to a rock-hard surface that can be easily shaped and formed with sandpaper. It takes about 12 hours for the material to cure at a temperature of 77 degrees. At that temperature you will have about an hour to work with the slurry (pot life).

You are advised to wear gloves and some sort of filter over your mouth and nose so as not to breathe the fumes or the particles that come off when you sand the hardened material. This is very important if you know that you are allergic to composite resins. Also, the microballoons are not exactly very healthy for your lungs.

So far, I have used SuperFil on the right hand section of N522PR. The results have been nothing short of spectacular.

One place I used it was on the seam between the vertical stabilizer fairing and the top of the fuselage. Since the fairing is made of fiberglass, I was able to sand the fillet to a very smooth finish that looks as if they are one piece.

There is, however, one caveat to using this product. You should not use it in large quantities in areas that are subject to flexing or excessive vibration. A particular area of concern is the wings, which as we all know suffer from an effect known as "oil canning."

When the wings flex, the wing skins develop wrinkles, and in this situation an area more than two or three inches wide covered with SuperFil will most likely crack. In this instance, the material should be used sparingly, and only to level the surface of the wing skin where the dimple was applied in order to place a flush Avex pop rivet.

SuperFil is a product of PolyFiber Aircraft Coatings. They can be reached at 1-800-362-3490. It is available in one pint or three gallon kits, and is also available from such retail outlets as Aircraft Spruce and Specialty and Wicks Aircraft Supply.

It takes seven people to build a BD-5.
Three to talk about what wings to use.
Another three to talk about what engine to use.
And one to build the aircraft.

-- Edward "Skeeter" Karnes, BD-Micro Technologies

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Clockwise from above; the Truck-A-Plane in action, the only known way to receive "flight instruction" on a BD-5; the original two-place BD-10 turbojet; N52BD, Keith Hinshaw's personal BD-5.