



(Photo by Jack Murphy) ON THE COVER...Jim Bede's BD-6.



(Bede Aircraft Photo) The BD-6 with the flaps extended by means of the overhead actuating handle.

## **NEW FROM NEWTON... THE BD-6 AND A JET MICRO**

By Jack Cox  
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YOU WOULD THINK nothing that Jim Bede could possibly dream up would ever again shock or even mildly surprise the aviation world...at least now, after nearly a decade of his energetic wave making in the otherwise placid pool that is general aviation.

Not so.

Prepare to batten down the hatches, trim the mainsail and all that because two new waves have already started rushing out from their epicenter in Newton, Kansas - a jet powered version of the BD-5 "Micro" and, in some ways even more surprising, a completely new design developed in secrecy at a site remote from the company headquarters, the BD-6.

The jet has been right under the nose of all the many visitors who have filed through the Bede facilities over the past six months or so. It's airframe has been under construction in plain view right along side a couple of standard Micros - and no one knew the difference. This, of course, indicates how little the exterior of the jet will differ from its piston engined counterpart. The only tell-tale signs, in fact, will be a tailpipe where the spinner and prop normally go and a slightly larger/NASA air intake. Bede's crafty "skunk works" personnel kept the lid on the jet all these many months by the simple expedient of keeping a spinner placed over the tailpipe. The BD-5J - that's the company nomenclature for the bird - will be powered by the same TRS-18 turbine that has received a lot of publicity over the past year as the



powerplant of the beautiful Italian Caproni A-21J sailplane. Designed in France but built in the United States, the TRS-18 is a tiny jewel of an engine that weighs a mere 66 pounds, yet kicks out a healthy 200 pounds of thrust. Bede's calculations show that the BD-5J should be capable of a cruise speed of 325 mph at 25,000 feet. The rate of climb at sea level should be about 3,000 feet per minute. Service ceiling is estimated to be 30,000 and with the string full out, Jim thinks the tiny job will top 350 mph.



(Bede Aircraft Photo) The BD-5J cockpit during construction. Notice the new miniaturized instruments. Yet to be installed when this photo was taken were transponder, radios, OME, vertical read-out engine instruments and switches - all fit, believe it or not!

Although the BD-5J fuselage is essentially the same as the conventional Micro, the jet does have a new wing. It has a span of 17 feet which places it between the BD-5A's 14.33 feet and the BD-5B's 21.5 feet. The new wing is sealed to take on most of the fuel load - a "wet wing". There is also a 15 gallon fuselage tank, providing a range of 600 miles with a 30 minute reserve.

The jet will have a gross weight of 850 pounds which keeps the wing loading low enough to allow 1,100 feet take-offs and 800 feet landing capability, making possible use of the machine at almost all general aviation airports around the world.

It is interesting to consider some of the new realms of flight the BD-5J will open to sport pilots. The "J", for instance, will be the first homebuilt capable of receiving a violation from the FAA for exceeding the 250 knot speed limit below 10,000 feet...in level flight! Of course it will have to be fully IFR equipped to go over 18,000 feet (the prototype is equipped with the new Bendix 241/242 Nav/Coms and a panel of miniaturized instruments specially developed for Bede Aircraft), and oxygen and cabin heat will be essential for high flying.

The "J" is no hap-hazard modification of a standard Micro. The engine manufacturers have had a BD-

5J fuselage in their developmental shop on Long Island all winter and spring and have done the complete engineering job on the engine installation. Such esoteric goodies as automatic electric fuel control systems have been incorporated to insure simple operation by owners, and starting, shut down and operating procedures have been worked out with the non military trained pilot in mind.



(Bede Aircraft Photo) The BD-5J..."J" for jet. It will be at Oshkosh.



(Bede Aircraft Photo) "It starts up here and goes all the way down there!" That's the fuel filter hole for the BD-5J's wet wing. Along with a 15 gallon fuselage tank, total capacity is about 60 gallons.

The BD-5J will have its official unveiling at Oshkosh and, needless to say, will be a center of attraction. This writer recently had an opportunity to see the Caproni jet powered sailplane flown at the Palo Alto airport in California and I can assure all of you that the sight...and sound!...of a tiny airplane with a turbine engine is a DIFFERENT experience. Kinda like a very deep baritone voice coming from the mouth of a three year old! Jim plans to market the BD-5J in his materials package form for \$20,000 to \$25,000 which is about what the newly certificated single place Pitts will sell for, fully equipped.



(Bede Aircraft Photo) Only the enlarged NASA air scoop gives the jet-powered version of the Micro away in this frontal view.

## THE BD-6

All right, let's come clean...how many of you took a quick look at this month's cover and thought it was a BD-4?? In fact, how many of you haven't realized until this moment that our cover is a completely new single place Bede design?

We'll pause here for a moment for you to take a second look.



(Bede Aircraft Photo) This frontal view of the BD-6 gives it away - it isn't a BD-4 after all. That's a Cessna 172 towering over the Six giving you an idea of the size of the little bird.

O. K., now you're back. Did you spot the narrow (as compared to the BD-4) main gear, the tiny prop...and the name "BD VI" painted right there on the nose? Tsk! Tsk!

What you were looking at was the best kept secret in aviation for the past year. While all the PR hullabaloo over the Micro was attracting everyone's attention, a small team of Bede employees sneaked away to an unnamed spot a couple of hours drive away from Newton, unrolled a set of Jim's plans and set to work. They succeeded in building a complete airplane and had it ready for flight at presstime - without anyone but a small group of Bede confidants knowing the score.

As is so very obvious, the BD-6 is a mixture of all that has gone before - a pinch of "Micro", a dash of BD-4, etc. The general configuration is that of a scaled down, single place BD-4. It shares with that design the bolt-together fuselage frame, the fiber-glass main gear legs, free swiveling nose gear and bonded sheet aluminum covering. From the BD-5 comes the Hirth two cylinder, two cycle engine (with a belt drive reduction unit), the wrist action, side mounted control stick miniaturized instruments and the wing...which is a story in itself. Because Canada requires a certain wing area/loading limit be met, even the long wing of the BD-5B cannot be licensed there. Jim overcame this problem by designing a new constant chord wing that fulfills Canadian requirements. This wing, naturally built up on the now familiar Bede tubular



spar, is also used on the BD-6. The span is 21.5 feet and, as in the BD-4, fuel is carried in sealed panel ribs - metal panel ribs as in the BD-5, incidentally.



(Bede Aircraft Photo) An "almost there" shot of the BD-6. The Hirth engine could virtually be placed in the big spinner.

(Bede Aircraft Photo) The constant chord BD-6 wing is also used on the Canadian version of the BD-5. It is made up of metal "panel ribs" bonded to a tubular spar.

The BD-6 will be marketed in the usual Bede materials package form - with the option of either a 55 or 70 horsepower Hirth engine. With either engine a cruise speed of 140 mph is hoped for along with a 900 feet per minute rate of climb.

A lot of people are going to look at the BD-6 and ask themselves the question, "Why?". With the BD-5 such a booming sales success, why go "backwards", in terms of modern styling, technology, performance, etc. There are lots of reasons, at least in Jim Bede's mind.

For one, Jim realizes that very low time pilots need a design that is better suited to their piloting skills than many of our hotter homebuilts - including his own BD-5A. The configuration of the BD-6 is similar enough to the Cessna 150 that a transition from the trainer should be uneventful - perhaps time in a Yankee or Cherokee to get used to a slightly higher rate of sink would also be appropriate.

The BD-6 was designed with grass fields in mind. Larger diameter wheels and the larger wing will permit shorter take-offs and landings. The Six is not intended to challenge J-3s in short field T.O./landing contests, but it will allow greater utilization of small town and private strips than many homebuilts afford.



(Bede Aircraft Photo) The BD-6 uses the side mounted, wrist action stick from the BD-5. The interior of the Six is quite roomy and well appointed.

The Six is intended to be a good choice for a first time builder. All construction techniques have been well proven in the BD-4 and the prototype BD-5s. The hoped for below \$2000 total price for the complete materials package (including engine, prop and reduction unit) will certainly appeal to everyone.

Meanwhile, the BD-4, BD-4 Turbocharged, BD-5 BD-5J and BD-6 will be at Oshkosh. See 'em there.

### **BD-6 DIMENSIONAL SPECIFICATIONS**

	<b>55 HP</b>	<b>70 HP</b>
Wing Span (ft.)	21.5	21.5
Length (ft.)	16.75	16.75
Height (ft.)	6.5	6.5
Empty Weight (lbs.)	375	375
Gross Weight (lbs.)	650	650
Useful Load (lbs.)	275	275
Limit "G" +/-	4.4	4.4
Ultimate "G" +/-	6.0	6.0
Maximum Fuel Capacity (gals.)	21.0	21.0
Fuel Capacity with 170 lb. pilot (gal.)	17.5	17.5
Wing Area (sq. ft.)	55.5	55.5
Aspect Ratio	8.32	8.32
Wing Loading (lb./sq. ft.)	11.7	11.7
Power Loading (lb./hp)	11.8	9.3
Cabin Length (inches)	70.0	70.0
Cabin Width (inches)	24.0	24.0
Cabin Height (inches)	42.0	42.0

### **BD-6 PERFORMANCE SPECIFICATIONS**

Maximum speed at Sea Level (mph)	140+	140+
Cruise Speed at 7500 Ft. (mph)	140+	140+
Sea Level Rate of Climb (fpm)	900	900+
Estimated Service Ceiling (ft.)	14,000	14,000+
Fuel Flow at 75%		
Power Cruise (gal./hr.)	5.5	7.0
Range at 75%		
Power w/30 Mins. Reserve (mi.)	450+	400+
Stall Speed - Flaps Full (mph)	50	53
Take-Off Ground Run (ft.)	600	500
Landing Ground Run (ft.)	400	450