

BALSA USA Excaliber
Review by Joe Redan
Rev A

Let me introduce you to Excaliber. Designed by Ron Busch the originator of Balsa USA in the 1970's and re introduced in 2009. Designed along the lines of the full size Ercoupe that was introduced by Engineering Research Corporation in 1940. Excaliber has a 52-inch wingspan and can be powered by a .40 to .50 engine or the equivalent electric motor.

Excaliber is not a re-make or re-design of the 1970 model it's the same model made from the original dies and the original plans. The instruction manual has been rewritten by Dave Lewis and done so well that I have included some of his instructions in this review as they are direct easy to follow and have kept me out of trouble, well almost. Excaliber is a kit, not an ARF kit in which the modeler assembles the plane but a real kit like we had when RC was just starting. What that means is that when you open the Excaliber box you find sheets of balsa, some required sticks and some die stamped wing ribs. You the modeler have to cut, glue and sand to make the plane start to take shape.

Now is the time that as Dave points out in the instructions you the builder has to make some decisions as to how you will build the model. One of the recommendations is to use two servos, one in each wing, which is what I did. The other is to build the wing straight, or with one inch of dihedral. I elected to build the wing straight. However I may decide to add dihedral but that decision must wait till I get more flight time in.

The wing

The manual starts with building the wing and that is where I started. Even if you are new to kit building you will find the Excalibur an easy kit to build if you take the

time to read the instruction manual first. The ribs are pre cut however no parts in the kit are marked so I found that at times I had to go to the full size plan and then go back to the instructions to get what the designer was trying to tell me to do a little prior kit building experience about now would be a big help. If you do run into any problem a call to customer service always was answered promptly and Dave Louis was always ready with the answer and encouragement.

Since I elected to mount my aileron servos one in each wing now is the time to drill the servo lead holes in the wing ribs. I took half the ribs at a time and stacked them together and used a 1/2 inch speed bore bit and gently drilled each stack. If any of the holes came out a little frayed some thin CA solved the problem nicely.

I made several changes to the wing construction starting with the trailing edge. I replaced the built up trailing edge with a pre-formed trailing edge, as I believe it gives me a truer wing. I also added shear webbing using scrap balsa out to the outer end of the landing gear blocks, which added weight to the wing but greatly increases the wings strength.

After the wing skeleton is finished the leading edges and center section are sheeted with 3/32 sheeting making this a very strong wing and easy to handle. I hate it when I pick up a wing and put my finger through the 1/32 sheeting used on some ARF's.

Fuselage

Now is the time to make another decision, what power source to use two stroke or electric. I chose what I believed to be a very well broken in .56 two stroke. As you will see when I get to the flying part I had created a rocket that the pylon people where envious of. But back to fuselage construction.

I strongly recommend a .46 engine, which will be plenty of power for the Excaliber. At this point the plans are very explicit on how to start the fuselage. Start by laying out the fuselage side and position the engine on the motor mount and position it over the plan to line up the firewall. If your engine or electric motor is long and you have to reposition the firewall you may also have to move back the first bulkhead. Since I used the recommended eight-ounce slant fuel tank that is exactly what I did. After gluing in the fuselage plywood doublers I decided to strengthen the wing area by using scrap plywood and extending the doublers to the rear of the wing saddle area. This was clearly my choice as I am not the gentlest flyer in making my landings and can use all the help I can get be it coaching or built in strength.

The rest of the fuselage and empennage (boy am I glad for spell check for that one) went by the instructions. I did hold off the bottom sheeting till after I had all the controls hooked up and the plane pre balanced. It just makes it easier if I had to relocate any item.

Finishing

The model was finished sanded and then coated with BalsaRite film formula and then re sanded. The plane was then covered with EconoKote in red, white, and blue in honor of all veterans.

Flying

Fortunately the rain here in Florida has let up enough that we can again fly even though our runway is very soggy. The wheels I used are the recommended 2 inch on the nose gear and two and one half inch main gear and the plane did get off without much trouble, however I will go to the two and a half inch nose and three inch main gear to get better handling.

At this point I enlisted one of my clubs best flyers Jerry Testa and we did a complete

preflight starting with balance, which was a little nose, heavy but not enough that we would not fly. Control directions and travel next and then engine set up. Checklist completed and now to see how the Excaliber flies.

Jerry did some taxi tests, which were borderline due to the wet grass, but with the 56 for power Jerry was able to get out of the wet area without the nose digging in. Jerry found a stretch of runway that was not to wet and with ever increasing power off Excaliber went. And boy did it go. As I said earlier the pylon flyers were jealous. The only correction needed was a couple of clicks of right aileron. Excaliber tracked well and aileron rolls, inverted flight and a loop were all without correction. What was noticed was that without a rudder or dihedral in the wing the plane does want to drop it's nose in slow flight.

Jerry was just about to set up to land and ran out of gas so we got an unscheduled glide test. With a nose heavy plane full up elevator was required to hold even a minimal glide.

Overall the Excaliber is a fun plane to build. I believe that with a little coaching the Excaliber can be modelers first build project. Excaliber however is not a trainer. It is a good low wing fun plane that is small enough that can fit fully assembled into most cars.

Have fun and fly safe.

Specification and Equipment Used

Wingspan:	52 inches
Wing Cord:	9Inches
Wing Area:	468 Sq/In
Weight as flown:	4.7 pounds
Wing Loading:	23 oz/sq ft
Radio used:	Futaba T6ex 2.4 GHz
Servos Used:	Hitec HS 425BB 5 required
Battery used:	600 Ma Nicad
Engine used:	A tired .56 Thunder Tiger

Pluses

- . Small enough that you can take to the field fully assembled
- . Excellent quality wood and hardware.
- .With a little coaching Excaliber can be a first build project.
- . A .40 is more then enough power for this model for excellent performance.
- . The twin tail really gets attention at the field.
- . This is a Balsa USA kit which means it is made in America.
- . Standard servos are all that are needed to fly Excaliber

Minuses

The below items are not really minuses but items I would do differently.

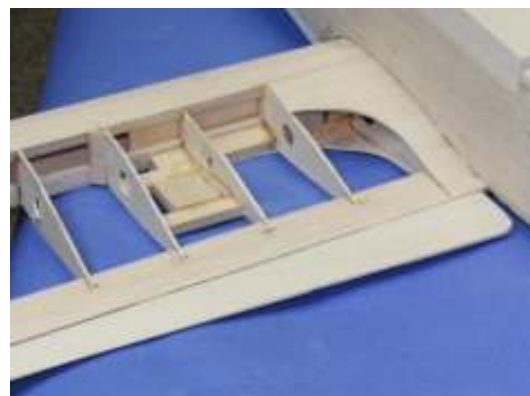
- Put one-inch dihedral into the wing.
- Replace the .56 engine with a .40-.46 for better balance with no loss of performance
- Reduce sensitivity of ailerons.
- Put on larger wheels for better grass handling.



Excaliber arrives with a rolled up full-size plan and a 32 page of instructions and helpful hints.



Layout the engine in the motor mount in order to get the correct spacing for the spinner and for the firewall. Remember to offset the firewall one degree right and down.



Shown in the above photo is the mounting for the in wing servo and the shear webbing used to stiffen the wing. The holes you have to drill for the servo leads are also shown.



Once you have roughed out the nose block and the top hatch cover you are ready to start rough cutting the blocks to shape. Then comes lots of sanding.



Since the selected engine was to be bolted to the motor mount I cut two slots in the bottom nose block for easy access. The slots were later covered over when the model was finished. Later access if needed is easy and the slot can be recovered.



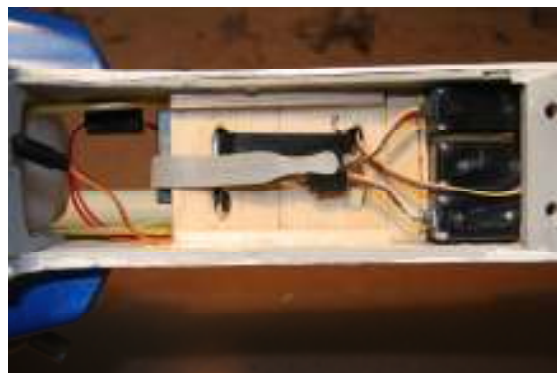
The recommended 8 ounce slant tank sits nicely behind the firewall making the running of fuel lines real easy.



The area under the fuel tank leaves plenty of room to hook up the nose steering arm and the flight battery. After the first flight I moved the battery to the back of the wing for better balance. A Velcro strap is used to tie down the fuel tank.



The hatch cover is removable all the way to the trailing edge of the wing making access to the radio and servos very easy. Velcro strips are used to secure the battery and radio. Make sure the leads are not interfering with the servos as shown. This item was corrected before the first flight,



The area below the radio and battery leaves plenty of room to tie all the servo leads together.



Jerry is doing one last run up before letting the Excaliber start its take off run. Even with the field closely mowed the wheels are half covered. Larger wheels will be used on later flights.



After a very short take off roll Excaliber just leaped into the air proving that after a 39 year lapse the design is just as solid today as back in 1970.



Excaliber is a great looking plane that with its double rudder tail attracts lots of attention at the field. Even without working rudders the Excaliber is capable of just about any maneuver except a knife-edge. This is a real fun plane.



Manufacturer

Balsa USA PO Box 164
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Sources:

Futaba
(217) 389-3630
www.futaba-rc.com
Hitec
(858) 748-6948
www.hitecrcd.com
EconoKote