

Das Splat Jr.

**Simple, Quick Building, and
it's Loaded With Fun!**

By Jeffrey Petersen

Das Splat Jr. is a two channel 1/2A sport plane designed for those who have some aileron experience and want something new and different. Its small size has a bevy of advantages, while giving up little in performance to the big boys. Don't expect unlimited vertical out of that little .049, but with a little planning, loops, rolls, and Immelmans are a blast!

There are many advantages to smaller planes that make them well worth the effort. For starters, they are very cheap to feed. That one ounce tank can keep you airborne for about ten minutes. That works out to about five hours per quart. Talk about cheap thrills!

They're also easy to transport. There are

not many vehicles that won't hold a 32½" wing, and they're easy to take along on trips, taking up almost no space. You'll no longer have to leave old faithful at home when on that family vacation.

One thing that many do not know about small planes, at least those planes in my experience, is that they handle high wind extremely well. I've flown in winds as high as 25-30 mph, spending several minutes to travel 100 yards upwind, and making the return trip in several seconds. I'll fly the little ones in winds that I wouldn't dream of putting bigger planes up in.

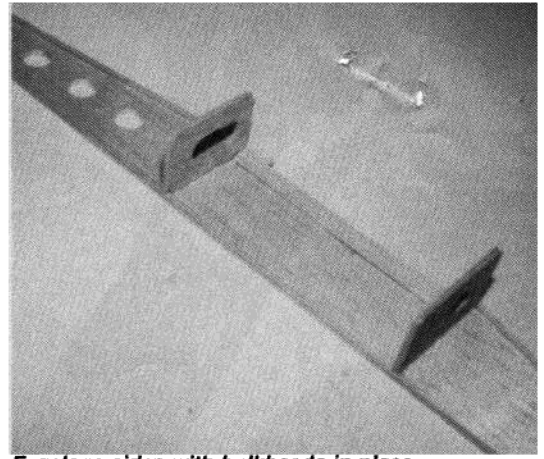
They're also incredibly tough. While I've become much better at avoiding the occurrence of sudden deceleration trauma, I still on occasion have an airplane that goes,

well . . . splat. Small planes seem to handle this much better than the larger ones. While I cannot give you a specific scientific explanation for this, I think it has something to do with kinetic energy and the ground having much less plane to stop when the two come into sudden, unexpected contact. I've snap-rolled a predecessor into pavement (Hey, I'm only human!), brushed it off, and kept on flying. The plane pictured in this article, unknown to me at the time, had its horizontal stabilizer knocked loose in a badly aimed landing (it hit my bipe). Effectively having no elevator to speak of, the next hand-launch ended about 15' away with a nose dive. The only damage was repaired by snapping the spinner back on!

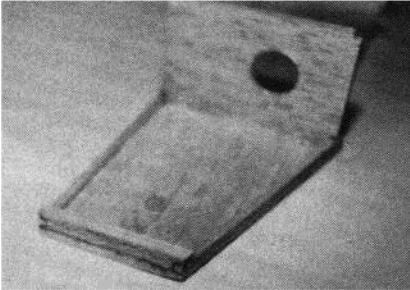
Okay, enough about the crashes, how



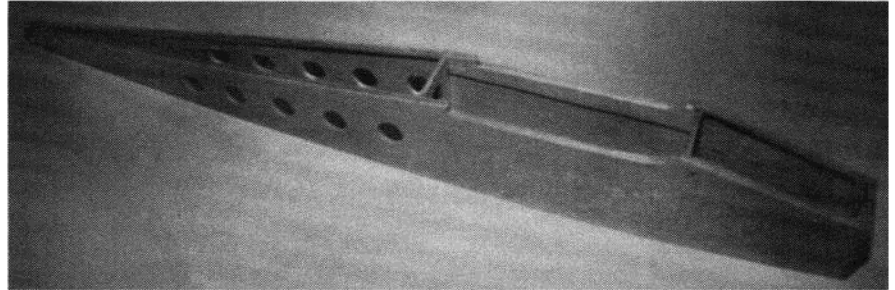
Major components laid out.



Fuselage sides with bulkheads in place.



Detail of fire wall reinforcement.



Fuselage before top and bottom sheeting.

does the thing fly? In a word, **great!** Das Splat Jr. uses a Clark-Y flat bottom airfoil that seems to be a good compromise between a docile flat bottom wing and a symmetrical one. It is very stable and has self-righting qualities, while still being able to perform two channel aerobatics. Since that isn't a Nelson 40 on the front, you'll have to think about your next move before you yank on that stick. If you don't have the speed, you will fall out of loops and such, but even when this happens, recovery is smooth, fast, and easy.

Up here in Mile-High Denver where the air is thin, we're known for putting engines on planes that are entirely too large just to make 'em fly. Even so, Das Splat Jr. flies well with a Cox Black Widow or Tee Dee .049. At lower elevations it should scream.

I'm one of those people who enjoys keeping my planes close and low when flying, and unless you have the eyesight of a hawk, this is where Das Splat Jr. will be flying. This makes it perfect for the local schoolyard, or any similarly sized field that

has neither large rocks nor a farmer with a shotgun. Okay already, enough with the sales pitch. Are you buying? Great, let's get building!

CONSTRUCTION

I'll start off this section with advice that I had viewed as almost a cliché: Start by making a kit, and cutting out all the major pieces! Being a contrary sort, I had never tried this before building this airplane. This really does work quite well.

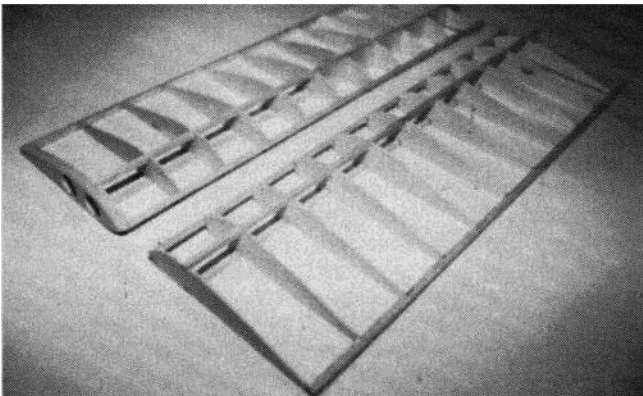
Wing:

I like to start out with the wing since it will allow you to fit the fuselage's wing saddle area to any eccentricities in your wing. When cutting out the ribs, it's best to use some sort of template, my favorite material for this being .050" aluminum sheet. Cut this to shape, then use a small nail to put holes at each end of the template. Lay the template on the balsa sheet and use pins to hold it in place. Ribs are a snap and the template will make duplicate planes that much easier.

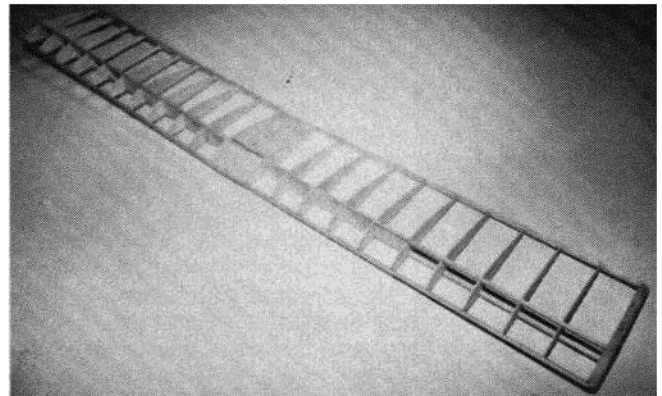
The wing is built in the conventional manner, with the bottom spar pinned to the building board, ribs are added (keep 'em straight and true), then the top spar. Leading and trailing edges are next, wingtips, and the shear webbing. You'll notice that the 1/32" shear webbing only goes out halfway. This was not arrived at with any complex calculations, but just looked right, so feel free to reduce or increase the shear webbing to suit your particular flying style. The center section is sheeted with 1/32" balsa as well.

The wingtips are 1/4" balsa, and you'll see lightening holes in them (as well as in the rest of the plane). I use a piece of brass tubing (.675" o.d., sold in most hobby stores) that has been sharpened and serrated to cut those holes. Keep the tube sharp, take your time, and you'll get clean, sharp holes.

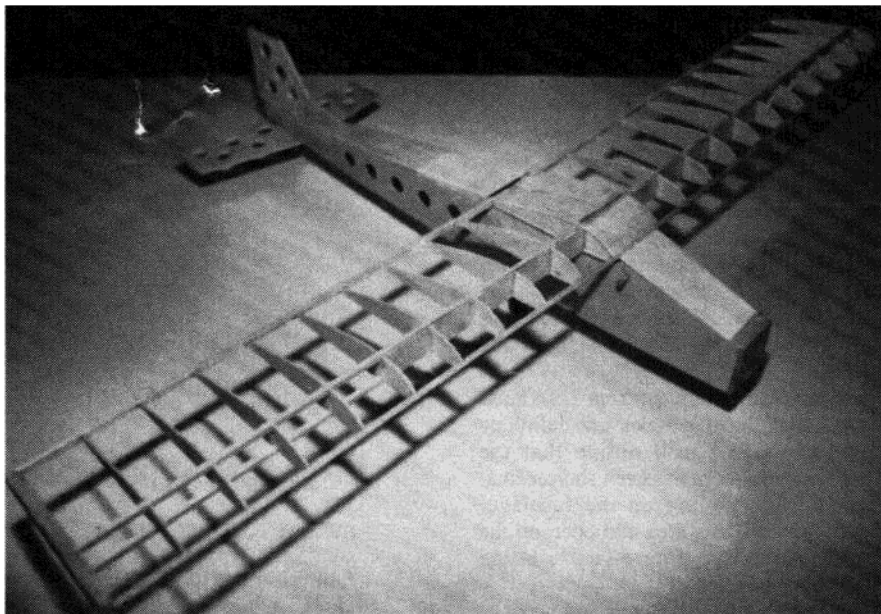
The wing halves are joined using 1/16" aircraft plywood, and this has proven to be plenty strong for such a light plane. Fiberglass or nylon tape is not necessary for the center section, but can be added if you



Wing halves showing wingtip detail.



Wing ready for ailerons and covering.

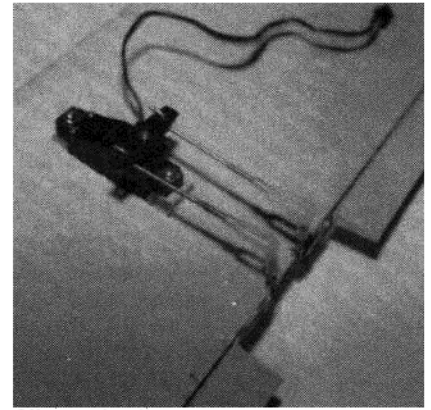


Das Splat Jr. framed up and ready to cover.

wish to. Then you're ready to cut out the center section hole for the aileron servo, taking care to remove only what you have to. Tailor the servo mounting blocks to keep

the servo as far in the wing as possible.

Ailerons are 3/4" T.E. stock, and are sanded to shape. Du-Bro makes a great little set of 1/2A aileron torque rods that I used on



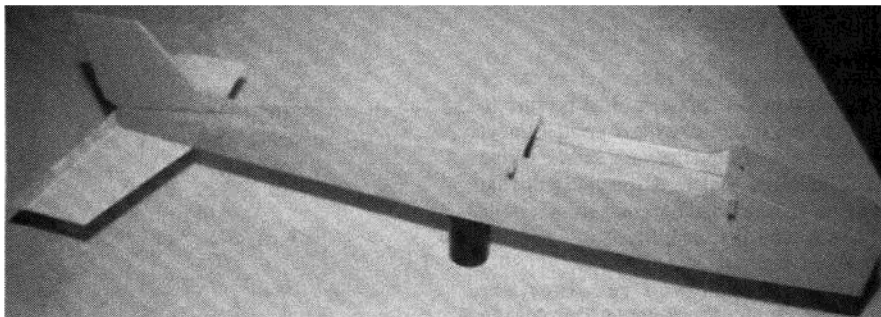
Aileron detail.

my plane, but keep the control arm portion of these short so they do not interfere with the receiver. Also make sure that the ailerons do not interfere with the wing hold-down dowels.

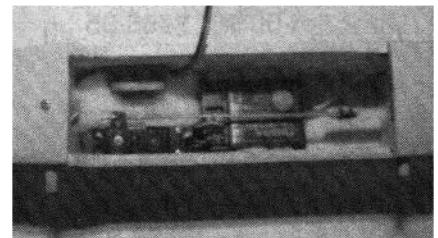
Fuselage:

Another one of those cliches that make a lot of sense is "make sure you build a left and a right fuselage side." Now is a good time to make the wing dowel mounting holes while you can hold the halves together. Glue the longerons to the sides in the appropriate places, along with the fire wall reinforcements.

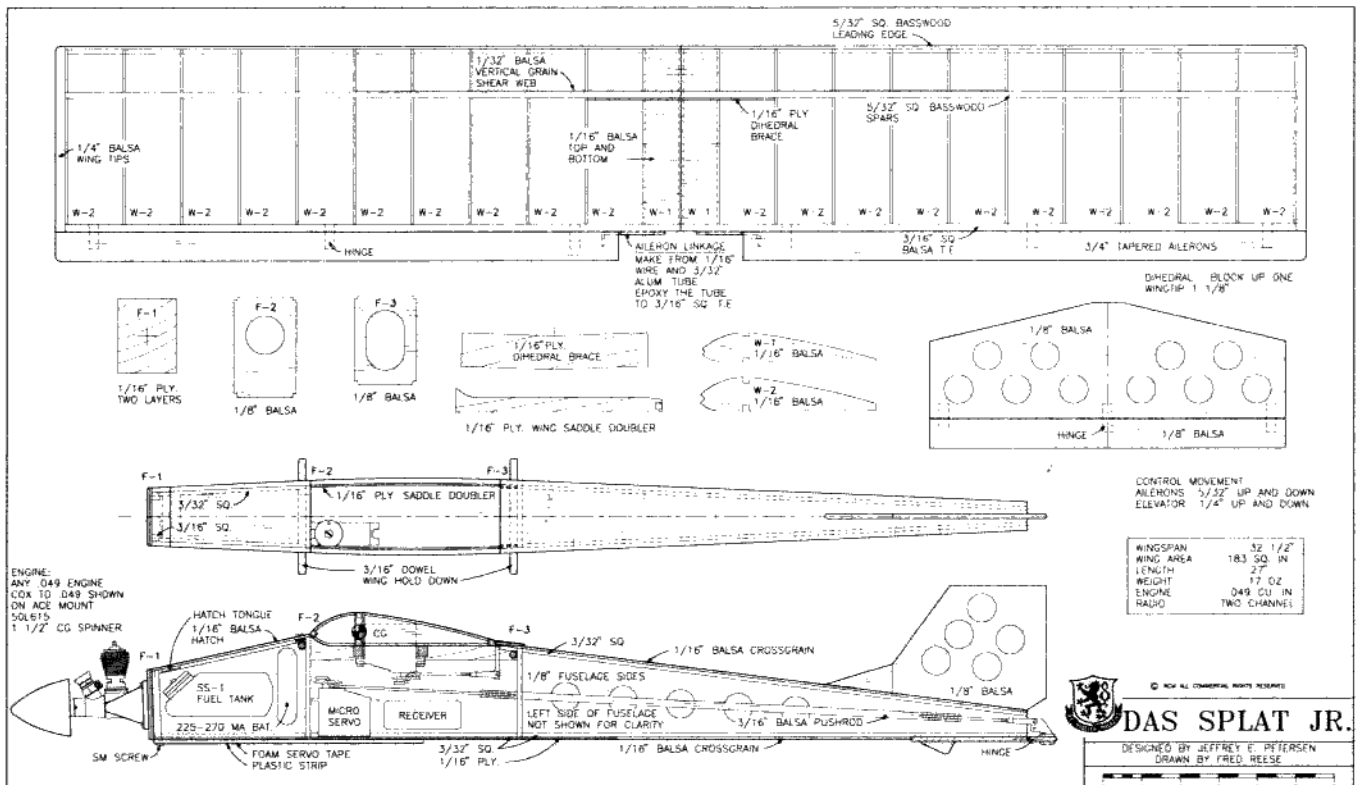
Next come the bulkheads, making sure to



Covered fuselage.



Radio compartment detail.



FULL SIZE PLANS AVAILABLE SEE PAGE 203

keep these square. Add the 1/32" balsa doubler to the wing saddle area. At this point we're ready to glue the fuselage sides together. Once together, the fire wall can be added. Note that the fire wall is two pieces of 1/16" plywood laminated together. Once the tail is glued together, you're ready to add the top and bottom sheeting according to plans. Pay close attention to which way the grain of the sheeting runs. The top rear sheeting is mostly lengthwise to save some weight in the tail. A tongue and screw is used to secure the front hatch to the fuselage.

The tail feathers are cut from 1/8" balsa sheet, and lightening holes are definitely recommended. You'll notice that the elevator control horn has been shortened to keep it from binding on the fuselage. Carefully check this area and open up the rear of the fuselage if necessary to assure freedom of movement.

Now a few words about the landing gear. There is none! Every landing is a gear up, dead stick landing. A good strip of plastic under the nose and a wingtip skid under the tail is all that's needed. Of course, if you insist upon having wheels, the plywood fuselage bottom will allow the easy mounting of landing gear.

Covering:

Any type of iron-on film covering can be used for your Das Splat Jr. Just be sure to seal the fuel tank/battery box compartment and the edges around the wing saddle with a good fuelproof sealer. Also, you will find that two or more bright, contrasting colors will help with the visibility.

Final Set-up:

Micro servos and receiver are recommended for Das Splat Jr. The elevator servo is mounted with servo tape to the bottom and side of the fuselage.

To ensure a good surface for the servo tape, spread a thin layer of CA where the servo is to go, then hit it with accelerator. For receiver mounting, I CA a piece of Velcro to the receiver and the bottom of the fuselage. It is lightweight, easy to put in and take out, and also provides vibration protection where there is not room for a piece of foam rubber.

Although I'm sure larger receiver and

DAS SPLAT JR.

Designed By:
Jeffrey E. Petersen

TYPE AIRCRAFT

Sport 1/2A

WINGSPAN

32 1/2 Inches

WING CHORD

5 1/2 Inches

TOTAL WING AREA

183 Sq. In.

WING LOCATION

Top of Fuselage

AIRFOIL

Clark-Y

WING PLANFORM

Constant Chord

DIHEDRAL, EACH TIP

9/16 Inches

OVERALL FUSELAGE LENGTH

27 Inches

RADIO COMPARTMENT SIZE

(L) 5 1/2" x (W) 1 1/2" x (H) 2 3/8"

STABILIZER SPAN

9 1/4 Inches

STABILIZER CHORD (incl. elev.)

3 3/8 Inches (Avg.)

STABILIZER AREA

31 Sq. In.

STAB AIRFOIL SECTION

Flat

STABILIZER LOCATION

Bottom of Fuselage

VERTICAL FIN HEIGHT

3 1/4 Inches

VERTICAL FIN WIDTH (incl. rud.)

3 3/4 Inches (Avg.)

REC. ENGINE SIZE

.049-.051

FUEL TANK SIZE

1 Oz.

LANDING GEAR

N/A

REC. NO. OF CHANNELS

2

CONTROL FUNCTIONS

Elev., Ail.

BASIC MATERIALS USED IN CONSTRUCTION

Fuselage Balsa, Plywood
Wing Balsa, Basswood
Empennage Balsa
Wt. Ready To Fly 17 Ozs. (1 Lb. 1 Oz.)
Wing Loading 13.5 Oz./Sq. Ft.

and set all control throws at 3/8" up and down.

Flying:

There really isn't much to say in this section because this is such a well behaved airplane. While it can be launched and flown by one person, the first few flights should be launched by a second person with a good arm. It should be held just under the rear of the wing when launching. Point it into the wind, take a few steps, and give it a good toss straight out and slightly up.

Make sure your engine is running well before flying. Since there is no throttle, the only way to kill a poorly running engine is to put it into the tall weeds. This brings us to my next suggestion, which is to fly the first few flights over those tall weeds. Not only does it make a good kill switch, it makes that first flight easier knowing that there is something soft under your new baby.

As I mentioned earlier, every landing is gear-up and dead-stick. I've found that dead stick landings on my larger planes no longer frighten me because of flying little planes like this one. When the engine dies, just turn Das Splat Jr. into the wind, pick out a smooth spot, and go for it. The glide is smooth, controllable, and not at all easy to stall. And if you're like me, you'll be unable to wait to get it back in the air. Good flying!

DAS SPLAT JR. MATERIAL LIST

- 2 — 1/8" x 3" x 36" balsa
- 2 — 1/16" x 3" x 36" balsa
- 1 — 1/16" x 12" x 6" aircraft plywood
- 1 — 3/4" x 36" balsa T.E. stock
- 6 — 5/32" sq. x 24" basswood
- 1 — 3/16" sq. x 36" balsa
- 3 — 3/32" sq. x 36" balsa
- 1 — 1/32" x 3" x 36" balsa
- 1 — 1/4" x 2" x 36" balsa
- 1 — package Du-Bro 1/2A torque rods
- 1 — 3/16" pine dowel



**From
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servos could be squeezed inside the fuselage, use a smaller NiCd pack (225-270 mAh) to keep the weight down. If your radio gear is larger than the plans show, the aileron servo can be mounted through the top of the wing using direct linkage to control horns. While not as sleek, the original plane used this method and showed no adverse effects. An engine with a tank mount would also free up a lot of space. Use your imagination and a shoehorn and you'll be flying in no time!

The plans show the battery position when using a Black Widow with an auxiliary tank backplate. This set-up required the tank to be kept low. With the Tee Dee .049 which was mounted later, the batteries could be kept under the tank. This is the preferred mounting position in that less weight is needed to balance the model. Balance the plane on the spar as indicated on the plans,