BY **Dan Deckert**

THE WINGS MAKER 50CC PAULISTINHA

A BRAZILIAN-BRED CUB

Departing the airfield, my Paulistinha has the look of a full-scale airplane taking off for a training mission in Brazil. It is just an excellent-looking model airplane.

I'm just stupid for Cubs, even if they're not technically Cubs in name.

The Paulistinha was developed and built in Brazil during the '30s and '40s. It was mostly used as a civilian and military trainer, and was an unlicensed knockoff of the venerable Taylor J2 Cub (not to be confused with the Taylorcraft or Piper Cubs). The Taylor brand name eventually became Piper Aircraft in 1937. The Paulistinha possesses most of the characteristics and looks of the Cub. However, the Paulistinha does not have flaps, like the J3. It does have an enclosed cowl like the Super Cub though, so it just has the Cub-like look no matter how you look at it.

WHAT YOU GET

In your kit you will get an extremely well-packaged airframe. It comes from the factory covered in Toughlon® and Lightex® in cream, black and red for colors. All parts are individually wrapped in sealed plastic bags that are taped into the box.

I was literally taken aback after opening the box and realizing just how big the Paulistinha is in wingspan. Pre-sale images do not do justice to what you'll see before your eyes. Each parts bag is numbered, which makes for an easy reference when working from the manual. The model's scale landing gear with inflatable tires and airfoils is a huge bonus.

INCLUDED IN THE KIT

- Airframe: fuselage and wings (covered)
- Landing gear
- Inflatable tires, with filler needle
- Tailwheel assembly
- Hardware package
- Two aluminum wing tubes
- Wing and jury struts
- Interior/exterior decal set
- Scale pilot bust with mounting plate and tape
- 800-cc fuel tank with clunk
- Clear plastic cowl template

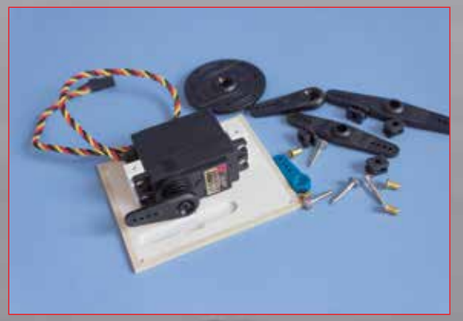
NEEDED TO COMPLETE

- DLA-56, gas-powered engine, with ignition module
- Valley View 22×8 wood propeller
- Hitec HS-7985MG (5)
- Hitec HS-485HB (1) throttle
- 36-in., heavy-duty extensions (5)
- A123, 6.6-volt, 2300-mAh LiFe Rx battery
- 4.8-volt, 2500-mAh NiMH (ignition)
- Opto Gas engine kill switch
- Miracle Dual-Switch with charge ports
- Transmitter
- Receiver
- Fuel tubing
- Fuel dot
- Adhesives
- Tools

I assembled all the parts I needed to get started but still had to buy some odds and ends I forgot about.

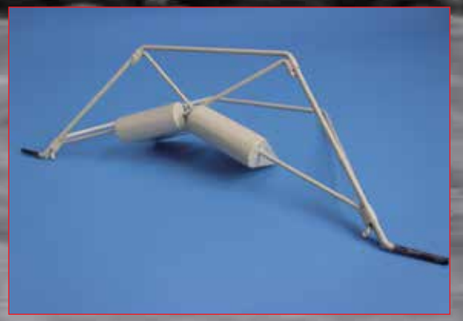
Those little orange and red dots are your opening locators for the fuselage and tail section.

The fuselage interior is nicely made and well built, right down to the glue joints.



These nicely molded servo trays for the ailerons are a very nice touch. No building required is a bonus.

The supplied hinges and pre-cut slots are a huge time saver when it comes to building the elevators, rudder and wings.



The main gear has some beautiful, airfoil-shaped, imitation bungee covers that add some extra pop to the scale looks of the plane.

IN THE AIR

To start the Paulistinha's maiden flight, I dialed the model's control throws way down, added 20 percent exponential to the transmitter's program and set the dual rates to their on position.

Then after checking the radio system's range, fueling the airplane and doing some taxiing tests, the model was readied for takeoff.

For takeoff, I applied throttle gradually, keeping the model tracking straight down the runway by adding only about 10 percent right rudder control, which I eased off on as the airplane accelerated and gained airspeed. Even with only about 50 percent throttle applied the model was flying and in the air in about 20 feet. Pushing the throttle up a bit more had my Paulistinha climbing aggressively. Note that the DLA-56 engine gives it enough power to climb straight up.

Once I had it at altitude, I checked the airplane's trims in roll, pitch and yaw control. It did not need any trim adjustments, with the exception of two clicks of right aileron.

Powered as it is, the Paulistinha flies like a Cub on steroids. The power for me is pretty unbelievable. Although there were 10-plus-mph winds for the model's maiden, that didn't prove to be a problem. Slow flybys and landings are impressive. When I stalled the model, power on it dropped its left wing a bit, but it did not fall into a spin. Power-off stalls were about the same; however, the model barely dropped a wing and it recovered from the stall quickly once airspeed was rebuilt. Looping the model is as easy as pulling back on the elevator control and maintaining power up the front side of the loop, with power pull-off on the back side. The loops are as round as you want to make them. When I spun the model, the spin did not turn into a spiral dive, but the spin did not

One of the nicest packing jobs for parts I've come across as each bag is numbered and referenced in the manual.

Inflatable tires with hubcaps and a super-nice tail wheel means you won't need to shop for replacement parts.

The supplied hardware comes with ball bearings to reduce binding in the control rods.

I made my own guide for the choke rod from an old spray can of brake cleaner and a piece of brass tube.

The electronics fit perfectly in the bottom servo tray and keep everything out of sight when the pilot tray is installed in the cockpit.

The DLA-56, gas-powered engine fits the fiberglass cowl perfectly. I used the vacuum-formed plastic cowl template to mark the fiberglass cowl for cutting.

This shows you another angle of how the fiberglass cowl gets cut to fit the DLA-56 engine. It makes for a very clean engine installation in the model.

You'll discover that you can just pull the power back and fly the Paulistinha in for a landing, much like you would a Piper Cub or Taylorcraft.

BUILD REPORT

The first thing you'll notice with the parts for this kit are the little orange/red dots that are placed on the fuselage and tail section. These are locators for all the servo and wiring penetrations. Next, as a caution, the tan covering will accept a lot of heat when you need to tighten the covering. However, the red covering will boil with too much heat. So, be careful as you are shrinking or tightening any areas of the model's covering that may have wrinkles to be removed from the covering.

I started my build by dry fitting pieces together just to get an idea of what I needed to do, as well as what, if any, changes I'd be making. On the aesthetic side of things, I decided to hide the model's on/off and ignition switches and fuel dot inside the cockpit to keep a clean, scale, outer appearance. There's plenty of room in the cockpit for the switches, charging the battery packs and for the fuel dot. The factory-installed, throttle servo plate has openings that allow for a clean install under the pilot support tray for the switches and fuel dot. Also, the manual shows a lock mechanism for the cockpit door, but I changed it out for magnets and Velcro® instead.

I started my build by securing the factory's pre-drilled hinges in place with 20-minute epoxy. Be sure to use some Vaseline® on the hinges' joints to prevent epoxy from getting into them. Note that before you install the hinges you should clip "D" portion of them on both sides as a way to widen the gap between the hinge. This will prevent epoxy from getting into the hinge.

The tail sections comes from the factory as a separate part of the fuselage. You must glue the tail section to the fuselage. It is easy and just takes a few minutes and a bit of glue to do.

Before the vertical stabilizer was mounted, I installed the servos, control horns, extensions and pushrods in the tail section. You'll need to be sure and center the servos before fastening them in position. I did so with my EDR-203 ServoCiser. You need to know that the pushrod arms that come with the kits do not fit the HS-7985 arms. Consequently, I installed Dubro# 811 4-40 HD ball links on the servo ends and the kit's hardware at the control surfaces. This worked perfectly. Then I installed the vertical stabilizer and preset it.

Then the tail wheel and flying wires were installed. The clips that attach to the tail feathers and the wires have a small hole for the factory-supplied threaded bolts. You will need pliers to put the screws through the two parts. I do not recommend the use of a screwdriver.

Next you'll install the wing's servos. The servo mounts are nicely molded plastic parts that require no glue or epoxy, but you will need to pre-drill them to mount the servos. The servos are rock solid after mounting in these plates. As a safety precaution, I use shrink tube on every servo extension connector and test them before I install any servos.

I set the tail section aside and started on the cabin area. I used Velcro at the trailing end to hold the pilot plate in place. For the bottom plate, I epoxied some triangular pieces under the plate onto the fuselage framing and used servo screws to hold it in place and so it's removable. I installed my throttle servo, switches and fuel dot onto the bottom plate so they're removable as well. For the door, I bent some wire in a U shape to act as a handle and epoxied two magnets at the front of the door to hold it closed.

With the cabin sort of finished, I grabbed the mounting dimensions for the DLA from the Hobby King website and made a template to mount the engine. I say "sort of finished" because there's a ton of trial fitting that needs to happen here with the engine and the electronics. I spent +/- 8 hours finagling around with everything to make sure everything would fit and still be removable in case repairs were needed. The interior of the cabin was pulled out so I could mount the motor standoffs. With the engine in place, I re-installed its ignition module and cut an opening in the firewall to feed the plug wire through. My setup left very little slack as a way to lock onto the spark plug. Next, I marked and drilled a hole for the throttle servo rod, installed a ball link on the motor's end and a quik-connector on the servo end. I re-installed the interior, installed the receiver, set up the control throws for the throttle and tested the ignition's kill. With the front-end electronics working, I epoxied the tail section onto the fuselage. After it had dried, I hooked up and tested everything that was installed.

I moved on to install the landing gear but ran into a problem of my own doing. I pre-drilled the holes, CA'd them and re-drilled them to clean them out. This made the holes so tight going into hardwood that the screw heads snapped off. Although the factory straps will work, I replaced them with Dubro # 811 gear straps for a better fit. The lesson learned is to not CA these holes.

With the gear installed, I started on mounting the cowl. The supplied cowl cutout mold is invaluable here. I won't detail my effort except to tell you to take your time doing this and make small cuts and test fit until you have it right. Expect to spend a lot of time if you want a clean, nice-looking fit.

With the cowl on, I looked for a way to install a wire for operating the choke. I used a homemade setup that holds the choke wire in place and gives you access to it through the cowl opening. It's not pretty but is effective and hidden.

At this point, I worked on installing the side windows, and installing the strut bolts into the wings and struts. I didn't install the windshield and suggest you hold off too because you may want access to the cabin area. Attaching the windshield was my last step. I used double-sided Scotch tape with a single screw on each side for safety. I also put a small piece of Velcro on the door-side window and under the wing that can hold it open.

Next I cut the covering holes out for the wing tubes and servo wires on the fuselage and worked on installing the wings. The wing tubes have two different-sized slots cut in them for the self-tightening latching pins. You will need to install the springs onto the latching pins. See #21 in the manual. Because it is NOT mentioned in the manual you need to understand the latching pins will fit only one way into the wing tubes. The beveled side faces away from the fuselage, with the short slot in the wing tube being the end of the pin. The easiest way to latch the springs into the wings is with needle-nose pliers. Although this design is different than using traditional wing bolts, it works quite well.

With the wings on, I then mounted my wing and jury struts. All that was left was to re-install the interior plates and set the model's CG. I installed its battery packs right behind the firewall on the bottom of the fuselage, which just barely gave it the proper CG. Thankfully, the over-heavy LiFe receiver pack was an aide. After adjusting the CG, all that was left was to check the control throws, add some fuel and go flying.

Control throws

	Travel	Expo
Aileron	+/- 35 mm (1.38 in.)	20%
Elevator	+/- 145 mm (1.77 in.)	20%
Rudder	+/- 160 mm (2.36 in.)	20%

Center of Gravity

124 mm (4.9 in.) back of leading edge at wing root

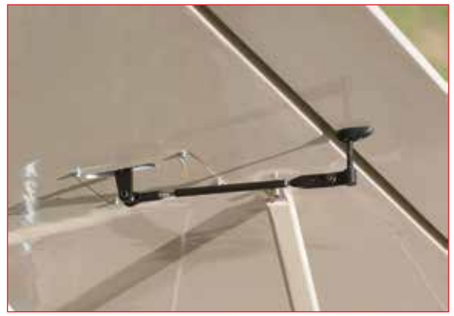
NOTE: If you are converting this model to electric, move the CG forward 10% of current CG distance from leading edge to compensate for the weight of fuel.

really flatten out either. It just did a nice, controlled spin, which you can use to burn altitude if needed.

Now, let me talk about rolling this airplane. The manual recommends that you have equal amounts of up and down on the ailerons' control throw. Don't do it if you want this airplane to roll and turn well. I recommend you use at least a 3-to-1 differential mix or control on the ailerons. It will let the airplane fly very nicely coordinated turns, and it will let it roll without adverse yaw.

You will like the way this airplane flies. It is very fun to fly doing touch-and-go landings, etc.

The servos for the elevators and rudder are easy to install in the aft end of the fuselage. It is a well-engineered design that provides positive control.



In this photo you see how the servos get installed in the wings for aileron control. Again, it is a clean and well-engineered design that makes for excellent control.

LIKE IT

I took more time than you would normally need to build my Paulistinha because I was doing so for this review. However, I rather enjoyed the build (see my build report) and certainly its in-flight capabilities. The extra time I spent building the model will make it easier to do maintenance on, and it made for a super-clean hardware installation. The airplane is a real beauty in the air, especially on slow fly-bys. Its scale-like landing gear makes it really stand out on landing approaches too. The Hobby

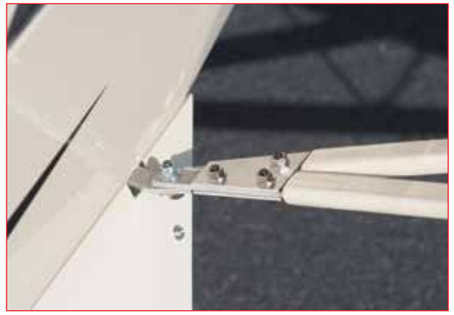
You will discover that when you apply the throttle the model's tail will start to fly almost from the minute the airplane start rolling.

With the exception of the exhaust pipe, you would think for all the world that this is the full-scale airplane coming in for a landing.

King DLA-56, gas-powered engine performed flawlessly and provides much more power than is needed for this model, so it climbs like a homesick angel, even on partial throttle.

Especially fun for me was that I could just imagine myself sitting in the full-scale Paulistinha's cockpit and looking down on the people below as I flew overhead. So, if I could not pilot the full-scale airplane, flying my World Models' Paulistinha is nearly as good, maybe even better.

What I think you'll discover if you buy one, is that this is an excellent flying and handling airplane. It performs quite well and does not have any nasty handling characteristics that might surprise a pilot. What I would say in conclusion is, if you are a Cub-type airplane enthusiast like me, you'll like it! So buy one. You will not be disappointed in its performance.



The wing's struts get attached to the fuselage by way of a bolt and lock nut. You'll find that it will only take a few minutes to assemble this model.

World Models provides a pilot for the cockpit. The landing gear struts are well built and include the scale bungee fairings that you would see on a full-scale.

You can have lots of fun cross controlling your model and doing one-wheel landings such as you see here. This is just a fun-to-fly airplane all around.

Suppliers

HobbyKing
hobbyking.com

Valley View RC
Phone: 253-875-6890
valleyviewrc.com

Electro Dynamics
Phone: 800-337-1638
electrodynam.com

Dubro
Phone: 800-848-9411
dubro.com

Specifications

Type	Scale
Pilot skill	Intermediate / advanced
Wingspan	118 in. (3000 mm)
Length	75 in. (1900 mm)
Wing area	1990 in.² (128 dm²)
Airfoil	Semi-symmetrical USA-35B
Weight	18.5 lb (8450 g)
Controls	Aileron, elevator, rudder and throttle
Construction	Balsa and plywood
Covering	Toughlon and Lightex
Radio channels	4 required
Engine	50-cc / 56-cc gas
Propeller	22×8 or 22×10
Flight times	10~12 minutes
Transmitter	Spektrum DX7
Receiver	Spektrum AR7000
Switches	Miracle dual-switch
Fuel dot	JEModel fuel filler
Batteries	A123 2300-mAh 6.6-volt 2S1P 4.8-volt 2500-mAh NiMH
Servos	Hitec HS-7985MG Digital (5) Hitec HS-485HB Deluxe (1)
Manual	Photo illustrated with text
Price	$549.99 #GA065

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